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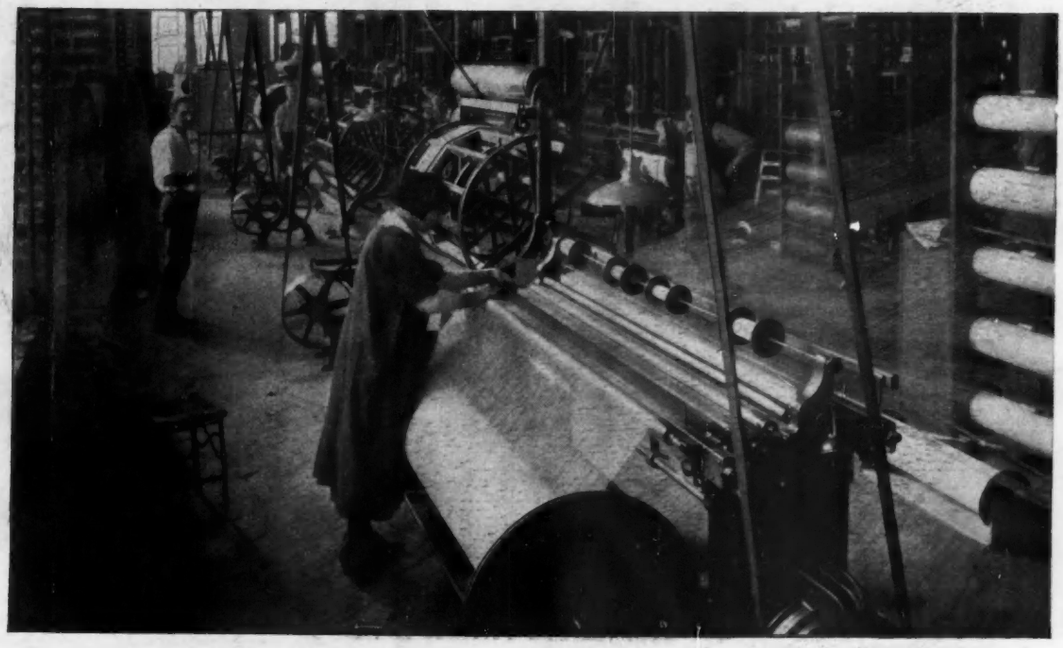
RHOADS TANNATE WATERSHED BELTING



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Vol. 93

COTTON

No. 1

November, 1928

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ROBERT W. PHILIP, Editor

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With the Publishers

Have You Executive Ability?

THE qualifications of an executive were recently defined by a prominent business man as follows:

> "One of the executive's essentials for success is the ability to absorb knowledge rapidly, and that whether he originally had a background of facts on the subject, or whether it is strange to him. He must be able to learn from specialists the kernel of the problems that beset them and then from his general fund of business wisdom arrive at a conclusion or a decision."

What better way is there to absorb quickly knowledge about the textile industry than from the articles and advertisements in COTTON? The editorial policy is thinking all around, from every angle—cheaper operation, higher output, better work, better conditions. The advertisers of equipment and supplies make suggestions in line with that policy.

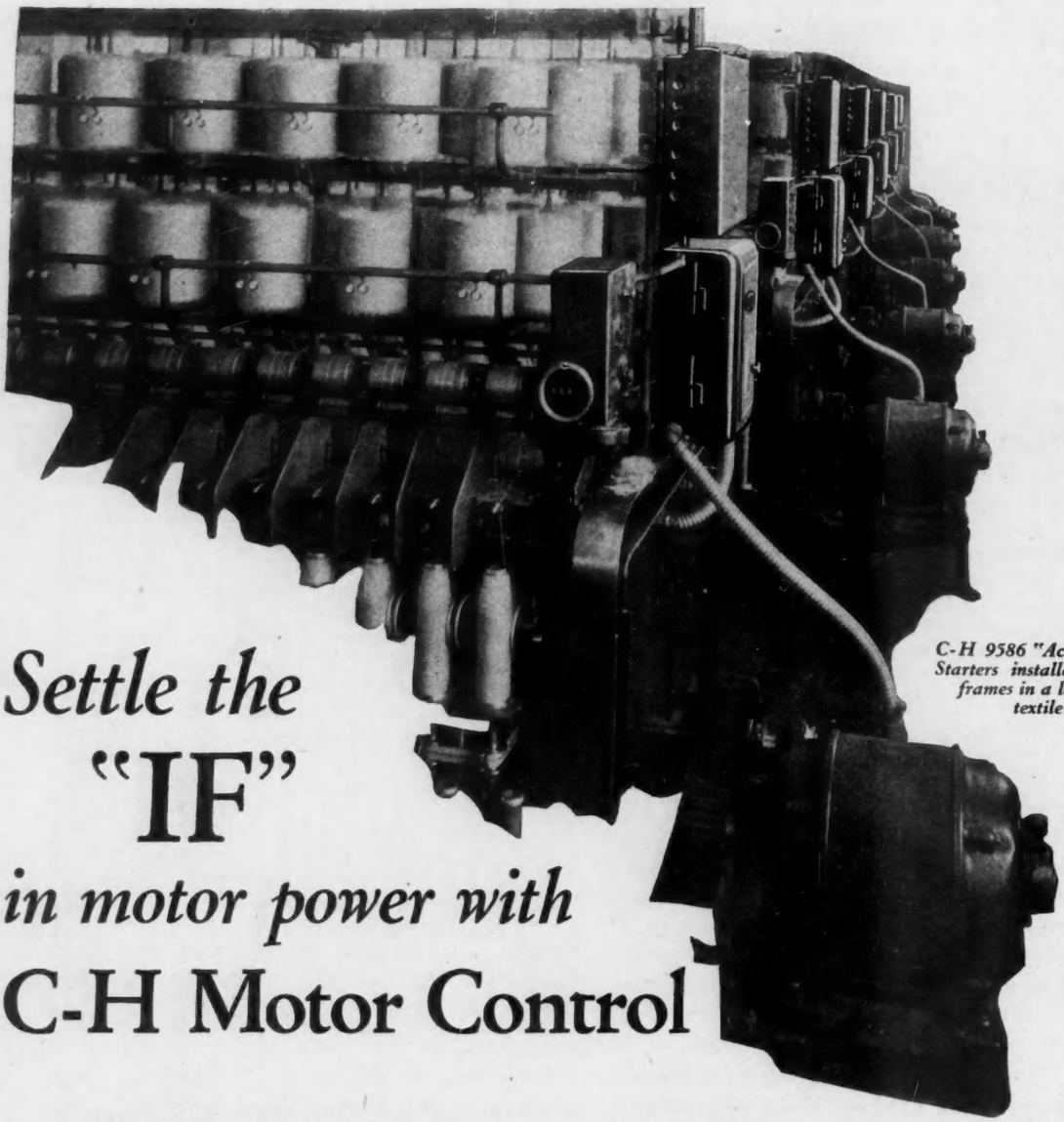
You can't afford to be too busy to absorb this kind of knowledge. In a recent issue of the Century Magazine, a writer said:

> "The self-made manager in business is nearing the end of his road. He cannot escape the same forces that eliminated self-made doctors and lawyers and admirals; * * * he is already hiring professionally trained engineers, chemists, accountants and hygienists."

There is only one loop-hole, which Printer's Ink points out: He must learn from business papers.

> "These very sources of all professional business training are at the beck and call of self-made business heads. * * * The school of past experience is taking the place of the school of hard knocks. It is on this foundation that the entire business press has been built. The increasing trend, evident everywhere, is for manufacturers to look before they leap. * * * It is true enough that business cannot be placed on a scientific plane. But certain pitfalls can be avoided. The previous experience of those who have solved similar problems may be used advantageously by the newcomer or the manufacturer to whom a certain problem is new.
>
> "Business leaders are agreed that guesswork has no place in commercial activities today . . . Information obtained from every conceivable source is the mainspring of action of these executives."

That's why the executive vice-president of a large knitting mill, in answering a question on underwear waste, said he was anticipating the figures of other mills when published. He wanted to check up on his own conditions, based on other plant experiences. This opportunity is afforded every reader of COTTON, regardless of his position and his particular problems, in any phase of the industry.



C-H 9586 "Across-the-Line" Starters installed on spinning frames in a large eastern textile mill.

Settle the "IF" in motor power with C-H Motor Control

THE advantages of motorization are many—and are established beyond question. But the mere presence of many motors in a plant never proves that all possible advantages of electric power are being secured—not "if" the performance of these motors is left to chance by inadequate consideration of Motor Control.

For maximum returns on your power dollar, motors must be protected—and controlled in the most convenient and safest way for the operator...Any size or type of motor, on any service, can be protected from overload damage with some type of C-H Motor Control. Likewise, there is a C-H Control which will provide step-saving convenience and safety for men on any motor drive.

These and the many other advantages of C-H Motor Control have come from experience—over 30 years of success in solving every conceivable Motor Control problem in every industry. Settle the "if" in motor power by standardizing on C-H Control for *all* your motors. Also bring your special Motor Control problems to C-H Engineers.

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CUTLER HAMMER

The Control Equipment Good Electric Motors Deserve

(3071)

A HEALTHY WORKER *is an* EFFICIENT WORKER

An Adequate Health Program in the Village Promotes Happiness and Production

By W. M. Mc Laurine

The mill village daughters are taught, scientifically, the necessity of properly selected foods correctly prepared, in making sound bodies for sound minds.

THIS discussion of a health program for mills—some of its values and how it may be applied—is a logical outgrowth of the author's discussion of physical examination, which appeared in the October issue. Most large mills have a health program, this discussion being intended largely for the executives of smaller plants, who feel financially unable to maintain departments on the scale employed by larger mills. Old educators say the purpose of education is to produce a sound mind in a sound body. There is some discussion as to whether the mental attitude produces the physical reactions, or whether the physical condition produces the mental state. In this article, the author assumes that a strong, healthy, vigorous body tends to produce a strong, healthy, vigorous mind.

SOME of the most destructive agencies in human life are the morbid, twisted face grouches who seem to take a delight in spewing their maw on the pathway trod by human kind. These mental dyspeptics and agencies of the devil are in a large measure victims of some physical ailment, which if corrected, would in a large measure, reform their lives and give them an entirely new outlook upon life. No factory or community is entirely free from these people, from the extreme type down to the incipient type. All of us have met them, and we have had these experiences in our own lives; when particularly on "Blue Monday" after a hard Saturday night and Sunday, when we have dissipated our energies and violated all the laws of hygiene and health, we showed up in our gang to make them hate us and to show them how we hated them.

Health produces ease of mind and comfort of body and happiness of soul, and enables a person to see his proper relationships to all mankind.

Health means greater efficiency; not only an ability to produce more, but a desire and willingness to produce more; not only a willingness and a desire to produce more, but a willingness and ability to produce better products, because all of us produce best when our physical and mental factors are harmonized rather than clashing with each other.

A healthy working force is a highly cooperative force because it has stable-mindedness; it has poise, an ability to see and understand, an ability to appreciate the weaknesses of mankind; an ability to forgive; health cleans the mind of all radical thoughts, because as we have stated, a wholesome body produces a wholesome mind, and a wholesome mind produces wholesome thoughts. Health creates greater loyalty among the working force, loyalty towards each other and loyalty towards the organization; it gives opportunity for concentrated effort. The mind at its best tends to look upward. It always has and always will. The mind at its worst looks downward.

A healthy working community radiates a splendid influence in the community; it radiates everything that it possesses and this radiation reflects honor and dignity upon the entire organization, and particularly upon its management. It creates a cheerful atmosphere, it lessens labor turnover and absenteeism; it decreases costs and increases production; it decreases labor troubles and creates a great social consciousness. It is a living example of the fulfillment of one of the great principles of life.

Health may be secured by education, direction and activity. From this statement there logically follows the

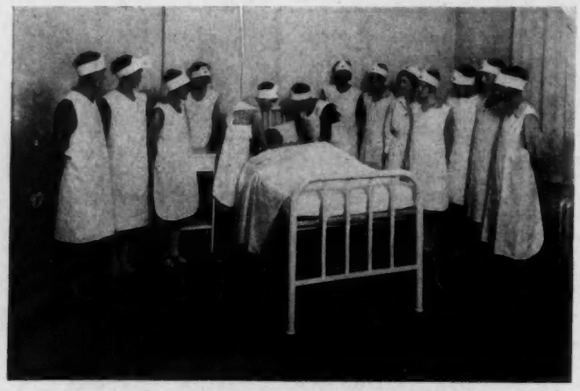
THAT "It can be done", is demonstrated in the photographs used to illustrate this article. They show scenes in the extensive health program of the Pacolet Mfg. Co., with mills at Pacolet, S. C., and New Holland, Ga., and are taken from an attractive booklet recently compiled by Katharine Dozier, director of educational work for the company, to indicate the growth and scope of the educational work in the school, church, home, and community.

The results of this program are considered more than justified by the Pacolet executives. Other mills have similar programs, and many mills utilize various adaptations of some of the features illustrated here. The demands presented by the newer conception of Industrial Relations—the necessities of progress and development—require, increasingly, a keener active interest in this subject. Those pioneers such as Pacolet, Bibb, and the rest, offer inspiration, experience and example to other organizations who would keep apace with the complex requirements of a fast-moving and increasingly important element of Industrial Relations.

fact that there must be some agencies through which these forces may express themselves. Below are indicated some of the natural already existing organizations through which the health program can be put on with but little expense. The only cost will be time, effort and leadership. These agencies follow and are not listed in degree of importance, but simply as information:

(1) School.
(2) Play grounds.
(3) Boys' and girls' organizations.
(4) Women's organizations.
(5) Men's organizations.
(6) The church.
(7) The home.
(8) The village.
(9) The mills.
(10) The movies.
(11) The example of right living.
(12) A community psychology of health.
(13) A determined decision.
(14) Never failing energy.

Create a healthful environment. It is sinful to be sick. It is an irrefutable evidence of ignorance or carelessness or both. Typhoid fever and smallpox are a reflection upon the management and not upon the workers. Epidemics are a social sin and chargeable to the account of management. Vaccination for smallpox and immunization from typhoid fever can be had for the asking, and it is incumbent upon the manager that he shall safeguard the lives of his people to this extent. The water and water supply for his village and his people can be tested by the state, or the county, or city, as the case may be. The milk supply can and should be tested and this can be done without any expense. Milk should be furnished in abundance to the children and to the workers, as it is cheaper and much more wholesome and nourishing than bottled or fountain drinks.



The Little Mothers' Club has a lesson in the care of a patient in the home. The domestic science department also gives instruction in invalid cookery and cooperates in every way with the health department, giving lessons in proper diet for mal-nourished children, etc.

Women's Clubs and Girls' Clubs can be formed and the domestic science teacher of the community will be glad to cooperate with them in giving practical demonstrations in the preparation of food and in teaching the women food values and the sanitary rules for good home making; care of the sick; care of infants and many other vital questions pertaining to the home. The women of every community are eager and anxious to do something like this, and all that they need is a little encouragement and leadership to get them started on a never ending program of constructive home making evolution. The women of the communities, together with the teachers, can put on a health and happiness program to last throughout the year, in which there may be included vegetable gardens, flower gardens, home beautiful, cleanliness of premises and many other things that require only effort and time and leadership.

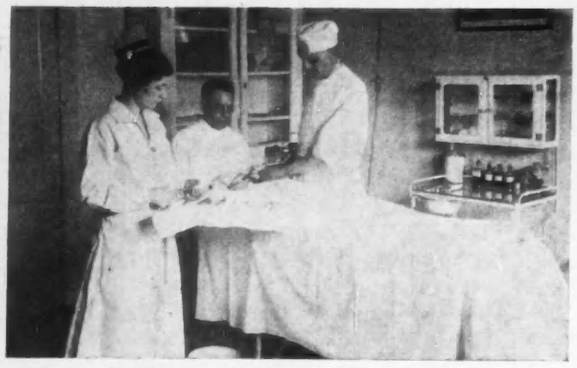
Teach and practice having sanitary homes, sanitary streets, sanitary villages, sanitary working conditions, sanitary living and personal hygiene. The state, county, city or community health department will cooperate with you in this program. They are ready and anxious. They are only waiting for you to ask them. There are many already existing organizations, such as insurance nurses, tubercular clinics, medical clinics of various kinds that are ready and waiting and wanting to help you.

The mill manager must develop leadership in his organization and stop being the "whole cheese" by "forbidding and ordering." He must be the "big boss" by placing responsibility on others with authority to execute; he must create the desire to have.

As indicated in the first part of this health discussion, most people have a tendency to partake of the general environment in which they live, and to adopt as their philosophy the prevailing philosophy of the group. If living conditions are bad, if factory conditions are unsanitary, the general attitude and philosophy of the people who work therein will be sloppy, indifferent and bad. Because a manager has a factory as good as his neighbor, it is not right for him to be satisfied unless his neighbor

Equipped playgrounds are popular and open at all hours.

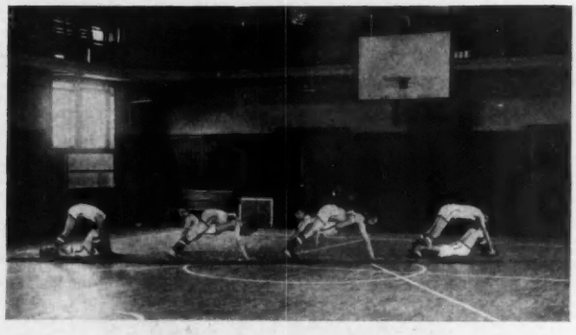
Waiting in the clinic reception room for consultation and advice.



Children found below normal weight and size because of bad tonsils have this handicap removed.

has the best conditions possible at his own plant.

The greatest duty in life is to manufacture healthy and happy people and not to make money for selfish pride and personal ambition. It has been said that if the average mill manager paid as little attention to his machinery as he does to the men that operate the machinery, the plant would be in a terrible condition. Making money and accumulating fortunes are not the chief ends to be accomplished; they are only means to an end as the chief purpose of life is to make people.



The gymnasium in the community building is used regularly for building health.

In starting out a health program the manager should remember that Rome was not built in a day, nor was the human body developed in a day. It takes a long process of time to build a city, or to build a strong and vigorous man, so in putting on this work, the manager must remember that he must not expect miracles, but he must remember that the children of today are parents of the next generation, that their ideals and philosophies of life can be moulded in their growing period.

In executing this program another thing is necessary to see that the management must not do too much for his people; he must rather help them to discover their latent possibilities and help them to help themselves.

He must utilize the Church for practical christianity. It is hard for a sick man to be a good christian. He should see that his gospel is a buoyant christianity. Morbidity and the fear of Hell should be kept in the background. Health and happiness and Heaven are stronger pulls to the upper route. The grouchers must be cured or "canned"; real living is happy living, work is joy and handicaps are tests of ability. The ever increasing and dominant note of society today is to make better people, happier people, thriftier people and the organization that does not realize this and incorporate it as a part of its program is out of step wtih the great social and industrial march of progress and will soon find itself in the rear ranks. In fact, the writer is of the opinion that today that industry that is without a health program is already occupying the rear ranks.

It is encouraging that so many of the more prominent mill organizations throughout the industry are giving serious thought and taking definite action with regard to this important phase of Industrial Relations. Unquestionably great progress is being made.

Institute Holds Annual Meeting; Re-Elects Officers

THE annual meeting of The Cotton-Textile Institute, Inc., was held in New York City on Wednesday, October 17th. Walker D. Hines, president, reported on the work of the organization, indicating that marked progress has been made during the last eighteen months; declaring that the mills are in a better position to cope with their fundamental problems and that they are making progress in solving them with the aid of the information placed before them. Mr. Hines also commented upon the style trend toward cotton, mentioning some of the uses to which cotton has been applied.

Mr. Hines also expressed belief in mill consolidations and selling house mergers, declaring that much would be accomplished in the direction of efficiency and soundness of merchandising practices if many separately owned and operated units could be consolidated.

It was reported that the membership of the Institute now includes 455 mills representing more than 21,743,000 spindles—more than two-thirds of the active spindles in the country.

Mr. Hines was re-elected president, and George A. Sloan was re-elected secretary. Other officers returned to their positions were: Robert Amory and Stuart W. Cramer, vice-presidents, and G. H. Milliken, treasurer.

Spinning Breaks and Other Problems Discussed by Texas Mill Men

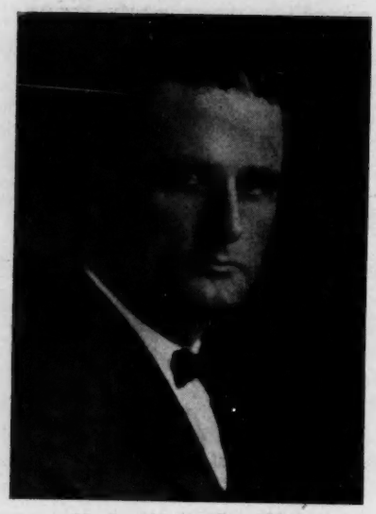
New Methods Installed in Mills Are Described at Meeting in Dallas

Reported by Robert W. Phllip

MILL subjects ranging from opening to weaving were discussed at the 27th semi-annual meeting of the Texas Textile Association, held at the Jefferson Hotel, Dallas, Texas, on Friday, October 5th. In spite of a small attendance, the discussion was interesting and developed a number of helpful points.

Hugh S. Clarke, general superintendent, C. R. Miller Mfg. Co., president of the Association, was in charge of the discussion. In opening the meeting on Friday morning, Mr. Clarke announced the appointment of committees, and requested brief talks from three visitors—J. M. Gregg, secretary, Southern Textile Association, and Paul F. Haddock, manager, A. Klipstein & Co., of Charlotte, N. C., and Robert W. Philip, editor of COTTON, Atlanta, Ga.

The practical discussion of mill topics was next begun. The most interesting and valuable development was the information secured with reference to end breakages in spinning, the causes, etc. A table showing a compilation of the reports on this test from a number of Texas mills appears on page five of this issue.



H. S. Clarke, President.

The first question taken up concerned the amount of quill waste per loom per week considered as a fair average. However, since there was such a variance in the methods of reporting, and such a difference in mill conditions, with reference to numbers, feelers, etc., that the information without full knowledge of the individual conditions might be misleading, and it is therefore omitted from the report.

"What improvements have you made during the past six months that would be beneficial to other members?" was the next question submitted by the chairman, and it produced some interesting information. A. L. Whetstone, superintendent, Dallas Textile Mills, Dallas, reported that by reducing the number of hank rovings made he had cut his cost considerably. "Our cost was high due to the fact that our carding could not keep up, and since we made the change we have been able to reduce the cost in the card room considerably by spinning our numbers from coarse hank rovings," he said. Chairman Clarke, who in opening the meeting had said he is making 22s out of 1.40-hank single roving, declared that this had pared off approximately a half a cent a pound from his labor cost.

Poole Has New One-Process Picker.

The next report on this question was from Dan H. Poole, superintendent Sherman Mfg. Co., Sherman Texas. "Since our last meeting we have installed two pickers in the picker room," he said. "We are now operating them as a breaker-intermediate-finisher in one, with equally as good results as before on three separate processes, when we had the usual breakers, intermediates, and finishers. It runs equally as good and for that reason we are continuing to operate them as one unit." He suggested that further details be secured from his overseer of carding, Mr. Brady.

"I haven't learned whether the cost has been figured out," responded Mr. Brady, "but we had five men originally, and we are running the picker room now with two men and a combination man who strips the cards and runs the waste machine. Mr. Poole said they ran about the same, but we can make our fly frames run better with the new arrangement, because we don't get the spiral off of the cotton, and it makes a better roving and makes a firmer bobbin. We also have less trouble with the tension, and I am not sure but that it runs better in the spinning room; it doesn't seem to break as much. I haven't seen the last check-up on ends, but just looking at it it seems to run better. We don't have as much trouble in keeping the section beam weights as we did; the beams have less variation in changes of weather. I just noticed the last 14 beams yesterday, and there was a variation of two points in the fourteen beams whereas very often it used to run five and six pounds with the three-process picking." Mr. Brady added that at the present he has to run the machines faster than he would like to, but that one additional machine would eliminate this problem.

Mr. Clarke pointed out that the elimination of two men in the picker room meant at least $30.00 per week saved. Mr. Poole said he had particular reference to the running of the work in the weave room, "which is where we are vitally interested; in the end breakage there was practically no difference, in fact I believe there is .75 per cent more end breakage as compared with the old system. Mr. Clarke emphasized, however, that the weave room is not the only criterion; that even if it only meant running in ten hours what the old process required eleven hours to handle it would make a big difference. He asked Mr. Brady about the number and style and speed of the beaters used. In describing the machine Mr. Brady said,

"It is an H. & B. machine with a lattice section, and a pin beater in the first to doff the cotton off of the apron; this is about 16 inches in diameter. It has five or six big knife bars under it. From here the cotton goes through a screen section and comes out in a sheet onto an inclined apron to the feed rolls, with an underslung evener. It goes from there to a 41-inch Buckley type cylinder beater, upstroke type, running about 550 r.p.m. Then it has a cleaning trunk over to the next cage, and then it goes to an 18-inch bladed beater running 1,100 r.p.m."

	Consolidated Textile Corp. Bonham	Dallas Cotton Mills Dallas	Dallas Textile Mills	Waxahachie Cotton Mill		Mexia Textile Mills	Sherman Mfg. Co. Sherman	Miller Cotton Mills Waco
Grade of Cotton	Middling	Loose	Middling	West Texas Bollies	St. Midd.	Low Midd.	Middling	Middling
Staple of Cotton	15/16"	¾-⅞"	⅞-15/16"	1"	15/16-1"	¾-15/16"	15/16"	15/16"
Yarn Numbers	22½s	15s	14.50s	12.50s	10s	12.25s	9.60s	9s
Size of Ring	1¾"	2"	2⅛"	2"	2"	2¼"	2"	2"
Number Traveler	2/0	6	3	7	9	9	10.5	11.5
Draft	7.3	12.41	7.8	10.04	7.69	8.97	6.86	7.52
Twist Factor	4.75	3.50	4.75	4.75	4.75	4.75	4.25	4.75
Front Roll Speed	115 rpm	134 rpm	146 rpm	.....	145 rpm	142 rpm	175 rpm	170 rpm
Single or Double Roving	Single	Single	Single	Single	Single	Single	Single	Single
Checker	.....	.....	.....	.....	.....	.....	.....	.....
Date	.....	.....	.....	.....	.....	.....	.....	.....
Hours Run	10	10	10	10	10	10	10	10
Spindles	1,000	840	912	1,000	1,000	1,000	1,020	912
Humidity	55% Avg.	65% Avg.	86% Avg.	85% Avg.	84%	.....	60% Avg.	49%
Causes.	**Ends down per hour per 1,000 spindles.**							
Unclassified	11.200	27.7	46.82	21.8	22.0	10.00	16.862	3.61
Roving Run Out	.425	1.1	5.15	.9	3.0	.2	2.058	.....
Roving Broke Back	.700	.5	1.09	1.8	.6	.8	.808	1.42
Bunches in Roving	.350	7.6	.99	1.3	1.6	.6	.295	1.09
Singlings	1.775	.9	.87	4.5	1.5	2.3	.270	1.31
Roving Run to Outside of Roll	.375	.....	.21	1.2	.....	.....	.024	.....
Hard Ends	1.250	.....	1.53	3.0	1.0	1.2	.098	3.84
Ends Caused by Hard Ends	1.200	1.2	1.97	.6	.....	.6	.....	.43
Roving Out of Guide	.100	.....	.....	.....	.....	.....	.....	.....
Lint in Trumpets	.500	.3	.55	.9	.....	.9	1,250	.98
Steel Roll Lap	1.200	.7	.43	1.4	1.0	.1	.490	.....
Top Roll Lap	.700	.2	.55	3.6	1.4	.....	.612	.10
Bad Top Rolls	.900	.9	.55	1.0	1.6	.3	.049	.98
Dry Top Rolls	.050	.....	1.65	.....	.....	.....	.....	.....
Flying Lint	5.075	1.2	.76	3.0	2.0	1.4	.049	2.85
Top Clearer Waste	1.675	2.2	.76	2.8	.6	.2	.049	.43
Travelers Off	.700	.2	.11	.3	.8	.1	.147	.....
Travelers Worn	.370	.4	.55	.....	.....	.1	.024	.21
Lint on Travelers	2.925	1.3	.43	1.8	1.0	.7	.196	.54
Slack Bands	.200	.....	.....	1.3	.2	.....	.196	.87
Bands Off	6.450	.....	1.31	.9	1.9	.1	.661	.21
Mechanically Bad Spindles	.825	1.9	1.97	2.2	.....	.....	.....	.43
Broken by Operator	2.400	.6	3.07	3.6	4.2	1.1	.465	2.08
Broken in Cleaning	1.675	1.7	.....	1.4	2.2	.2	.725	2.08
Ends Down at Doff	4.350	8.8	5.48	8.1	9.4	6.4	13.186	7.67
Bad Bobbins	1.850	.8	1.31	.....	.....	.....	.....	1.64
TOTAL	49.220	60.2	78.17	67.4	56.4	27.3	38.504	32.89

The table above shows the compilation of spinning end breakage tests made by several Texas mills and reported at the Dallas meeting on October 5th. To make the tests comparable, all figures were reduced to the number of ends down per thousand spindles per hour. Such figures are interesting in indicating what are the major causes of end breakage. It will be noted that in every case a large percentage of the breaks are "unclassified," affording a reason for investigation as to the causes of these breakages which have not been determined.

H. A. Burow, superintendent, Consolidated Textile Corporation, Bonham, Texas, explained that he had bought the hopper section of one of the pickers Mr. Poole threw out, and uses it for re-working his white waste mechanically. It is put in back of his two breaker pickers, with an upright apron up under the condenser, and is speeded up to take care of the waste all day long. He finds this much better than feeding by hand in a couple of hours.

Morton Finds High Speed Winding a Help.

W. S. Morton, superintendent, Dallas Cotton Mills, Dallas, Texas, was asked for a report on the Universal system of high speed winding and warping he had installed to replace spooling and slow speed warpers. He said that he finds that the high speed winder and warper "is in keeping with the automatic loom. Everything must cater to it. You must have everything just right or you cannot get production from the high speed warper. The yarn must be better than you can run on the old type of warper, and your winding must be perfect; even a protruding knot on the cone will break an end down. But stop and consider that we took out six warpers and put in two. So far, about the only advantage I can see in the high speed warper is that it makes you more careful. It brings to your loom and the after-processes a better yarn. It is very accurate in its operation; the broken end is left where the operative can find it."

METHODS OF INSPECTING CLOTH.

Practices as to inspecting cloth were discussed as the first subject of the afternoon session. The first man to respond to the question was Mr. Poole, who said that he inspects on the folders, having one man, with a helper, to run the folder, marking the yards down and laying the cloth on the cloth table. "We find that we get as good an inspection in this way as by inspecting by hand."

"We inspect them by turning them through, fold by fold," said M. T. Lance, superintendent, Hillsboro Cotton Mills, Hillsboro, Texas. "They turn through half folds and then fold it over and go back the other way." Mr. Morton brought out that the use to which the product would be put determined largely the type of inspection necessary. Mr. Poole said that his goods are shipped to a variety of users; much of it going into Pullman porter uniforms, tents, awnings, etc. As to the number of inspectors, Mr. Morton said he uses, on eight-ounce duck, six

inspectors on 332 looms. Mr. Lance has one man do the inspecting from 140 automatic and 32 plain looms.

"We inspect all of the cloth over the folder," said J. G. Coman, superintendent, Mexia Textile Mills, Mexia, Texas. "The folder man is the inspector and he also marks the yardage and sets it aside. On the duck we are making which goes into special purposes we give a special inspection."

"We inspect our cloth over inspecting machines and have a grader at each machine," said Mr. Clarke. "Then they go through the folder and then after that an inspector goes over the tagged places."

On sheetings, said Mr. Burow, he inspects over the folder. Mr. Morrill, of Postex Cotton Mills, said he inspects his sheeting over tables before bleaching, strings being tied in to indicate defects, etc. Mr. Clarke and Mr. Poole brought out that within the past two years customer's requirements as to inspection have become considerably more rigid.

LIFE OF COTTON TWINE HARNESS.

Ingram Lee, assistant superintendent, Dallas Textile Mills, Dallas, Texas, was the first to report on the next question, which was, "What should be the average life of a cotton twine harness? What factors contribute to shorten the life of harness, and what are the remedies? State whether estimates are based on day and night run or day only?" Answering the first and last portions of the question, Mr. Lee stated that the average life, in his experience, on continuous run day and night, is from four to five months, "although we have some that last as long as six months and some that will run out about three warps."

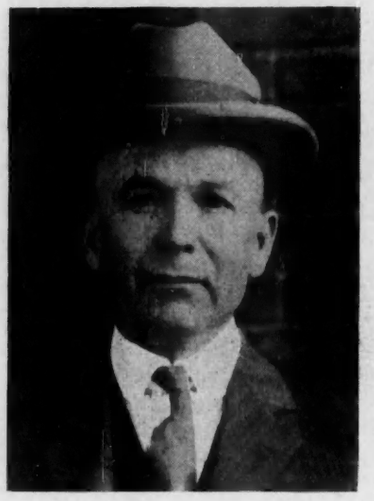
Mr. Clarke asked whether harness will last longer on plain two-harness work or on twill weave. Mr. Lee replied

A. L. Whetstone, Vice-Pres.

that "on the two-harness it will last longer because on the twill you have to cover the cloth which puts additional strain on the harness." Taking up some of the causes of harness wear, Mr. Lee declared that "in the first place we found our harness lasted better with proper conditioning, and when we allow the manufacturer time for this, in ordering the harness, it lasts much longer." A tight bottom shed to put a face or cover on the cloth is another factor which will wear the harness he said; also, changing moisture conditions. He pointed out that harness will wear more on continuous running day and night than if it had a chance to dry out and "recover." He added that tests have proved that the cabled twine harness is much the stronger.

Heavy sley and heavy pick, eyes cut at the drawing-in machine caused by bent needles or harness too high; tight harness; lay knocking against the harness; running a narrow harness on a wider loom, etc.—these are among other contributing factors in harness wear.

"We find that heavy sizing will cause the harness to cut out on heavy duck," added Mr. Coman. "On 10- and 12-



D. H. Poole, Secretary.

ounce duck our harness life is about three months."

W. S. Morton said he uses both the twine and the mail-eye. "On our twine harness, I went back to our 1925-1926 records, and found they lasted about six months. For 1927-1928 our harness is averaging a year. On our mail-eye, we have some that have been running three years and are still in good condition. Our twine harness has doubled its life and I don't know the reason."

Mr. Clark said that several years ago his harness life was around seven months at Waco, on twine harness, but that he started allowing the harness makers time to make the harness up ahead, and since then the life has been lengthened to 13 months. "Also at the suggestion of the harness makers, we find it pays to keep the harness stored in a dry place and not in the weave room. We have tried the mail-eye harness and got good results where the sley was not too heavy. We put in 25 sets in 1924, and they are still as good as brand-new. We draw these in by hand."

"We have some twine harness on sheetings that has been running for two years," said J. T. Chappell, superintendent, South Texas Cotton Mills, Brenham, Texas. "We have some mail-eye harness that has been in use since 1919."

"Where you have indigo-dyed warps," cautioned Mr. Clarke, "if you are not careful in washing the warps after dyeing the caustic will rot the harness." Here Paul F. Haddock added that a number of mills on indigo denims are using formic acid in the warp size to do away with the caustic action and at the same time to keep uniform shades. Mr. Clarke said he is using one per cent of acetic acid in the wash box, and Mr. Haddock pointed out that this is not so strong as the formic acid.

(*Continued on page* 127.)

New Trends Stressed in S. T. A. Program

Southern Textile Association's Greenville Meeting Emphasizes Modern Developments and Practices in Industry

THE semi-annual convention of the Southern Textile Association, held in conjunction with the Southern Textile Exposition in Greenville, S. C., was condensed into one session, on Friday morning, October 19th. A valuable program had been arranged, however, and the meeting was well worth the splendid attendance on hand when Carl R. Harris, president, called the meeting to order in the Poinsett Hotel ball room.

There were four main addresses delivered at the session, ranging in subject matter from modern mill equipment to weaving rayon, and a new high-speed roller bearing spindle, and new fabrics made from and with Celanese yarn.

Herbert G. Beede, secretary-treasurer, Fales & Jenks Machine Co., was the first speaker, taking as his subject, "Modern Textile Machinery and the Textile Problem." After covering in a broad and general way the present conditions of the textile industry, and commenting upon its problems, Mr. Beede submitted some interesting observations with reference to textile machinery, saying in part:

Modern Textile Machinery.

"I sometimes wonder if we realize how much progress has been made in the last thirty odd years in new machinery, new equipment, and new types of mill construction. I wonder if we realize what a difficult task it has been to introduce the new machines and equipment, and I am surprised when I realize how many mills have failed to keep up with the procession or have installed very little if any, of the new equipment.

"Once we argued against the automatic loom. Today we accept it without question.

"The self-threading shuttle slowly but surely replaced the "Kiss of Death."

"The quick traverse winder for parallel tubes and cones has replaced to a great extent the old double-headed spool.

"Artificial humidification with automatic control has made it possible to operate in any climate and under all conditions.

"The vacuum and other card stripping devices have made the card room more sanitary, have improved production and reduced labor cost.

"The warp drawing-in and the warp tying-in machines came into use as an important labor saving device, insuring against carelessness and labor troubles.

"The knot tyer for spoolers materially improved the spooling and the later warping operations.

"The high speed warper with automatic spooling has made wonderful strides in mills operating on standard coarse goods.

"The high speed warper with large cone package creel has begun to find its place during the last few years.

"The high speed comber came at a time when the combing of cotton yarns was on the increase, thus making the combing process both possible and profitable without sacrificing too much floor space.

"Tape drive for spinning and twisting frames was bitterly opposed by many mills and by machinery competitors. Today not only is it accepted but demanded in all new installations and an important factor in the price of second-hand machinery.

"The spooler tension for filling wind bobbins increased the speed of spooling and reacted favorably on the spinning process.

"The large package twister for tire yarn and other work, using sizes of rings and bobbins once considered not only impractical but impossible, was developed and came into use well timed with the development of the tire business.

"Fifteen years ago, the ball bearing spindle was considered impractical. Today it is accepted for twister spindles and considered almost a necessity for tire fabric yarns.

"For years, experiments and tests were conducted looking toward the introduction of a ball bearing spinning spindle. At length the S K F roller bearing bolster was

Carl R. Harris, President

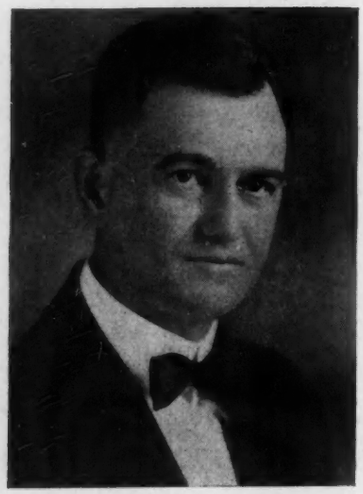
developed, and spindles equipped with it manufactured and installed in large quantities throughout Europe. Now it has been introduced into this country and can be furnished by any of the textile machine shops. Ball and roller bearing spindles not only save power but they save oil, labor and upkeep, and withal they improve very materially the quality of the work produced by the spinning frame or the twister.

"Anti-friction bearings once produced in various crude forms, finally developed and perfected in connection with the automobile and various mechanical devices, today are being applied to all kinds of textile machinery and are standard equipment on opening, cleaning and picking machinery.

"The high speed twister ring in various forms came as a result of the demand for higher speeds, particularly in tire fabric twisters where the number of machines involved required hundreds of thousands of twister spindles.

"Large package spinning with ring and traverse properly proportioned to the size of yarn is nothing remarkable except that today machinery is built suitable in construction and capacity for the work to be done. Less than thirty years ago, the largest twister ring in use was 4½ inches; today it is 7¾ inches. The largest spinning ring in use was 2¼ inches; today it is 3½ inches.

"Long draft spinning has come into prominence in the last few years and hundreds of thousands of spindles have already been equipped with it. Long draft is not new. It was a matter of trial and experiment for a great many years but until recently it seemed to lack those vital points of refinement and construction which meant success. Judging by the reports which came to us from mills where thousands of spindles of equipment have been installed it seems to have a considerable excess of good points over any which may appear objectionable and the consensus of opinion seems to be that even with the longer draft a



L. L. Brown, Vice-President

stronger yarn is produced, particularly where mixed staple cotton is used. Very plainly long draft has an element of virtue in it which is bound to hold a prominent place in the future construction of the spinning frame.

"How much better long draft or even the ring spinning frame might operate if the cotton were properly prepared in the picker room, very few of us can predict; but to my mind our most important step and one which should be taken without delay is the revamping of our opening, cleaning and picking processes.

"Before proceeding further, let us not overlook the fact that other very important developments affecting the modern textile mill have taken place. Electricity, a source of power more flexible than our old cumbersome engines with line shafts and counters, maintains a more constant speed, improves lighting conditions and cleanliness and reduces the labor of maintenance. Electrification of an old mill is one thing, but the modern electrically driven mill is of new design and construction, a great advance in the art of mill building, a thing of beauty and a joy forever; at least so it appears to us now.

"Thus far in discussing progress in textile machinery and equipment we have been following quite closely the chronological sequence of events, but now as we approach the end of the story we really arrive at the beginning of the cotton textile process: the preparation of cotton.

"The necessity for new methods of opening, cleaning and picking has become more and more insistent and in the last few years the further necessity of reduced costs of manufacture has also had its effect. The result was the gradual development of a new system based on a theory. Of course theories are not necessarily practical, but the theory on which this development is based is merely the theory that the preparation of cotton should be sub-divided; that in no process of preparing the lap should the cotton be abused; that the cotton should first be opened, then cleaned, and finally made into a lap; that the lapper is not a cleaning machine, but primarily a machine for making laps for the card and that these laps should be made as even and uniform as possible in order that beginning with the card and subsequent processes, the sliver may be clean, even and uniform, with the staple in good condition, still retaining all its natural strength and elasticity.

Opening, Cleaning and Picking.

"How well this idea has been carried out is already partly proven, but the extent to which this new preparation will improve the later processes in the mill is not yet fully demonstrated, except as one may rely upon the statements of mill executives where the system has been adopted. The statement has been made frequently that it improves the entire operation of the mill, the quality, the cleanliness, the strength and the evenness of the yarn, all of which in turn improves the loom production and quality of goods.

"This result was to be expected because if we have obtained the results according to the theory, then we have prepared for the card an exceptionally good lap, not as perfect a result as can be expected in time but still far ahead of anything produced heretofore. Of course for a long time, we proceeded more or less blindly, for as usual, though the theory might be correct, actual practice showed up the mechanical defects.

"But to make a long story short, it has been found that several fundamental principles are involved:

"First, that cotton should *not* be beaten from feed rolls or across closely set grid bars in the early part of the process, or until a major part of the foreign material in the cotton has been removed.

"That the best results without injury to the cotton were obtained by centrifugal action with all obstructions, such as grid bars and screens, at least 1½ or 2 inches away from the beaters.

"That all the machines in the equipment which employ beating or whipping processes should have dead air chambers in order to allow the dirt or other foreign material, once thrown out, to stay out.

"That in the pickers themselves, the action of the beater should be a whipping action and not a beating action and that the setting should not be closer than ⅜-inch at the pedal nose with considerably more clearance at the grid bars.

"That each process of cleaning, beating or whipping should be controlled by accurately gauged condensers, lattices, and stripping rolls, so that the travel of the cotton through the processes would be positively regulated.

"That each alternate process of opening or cleaning or aerifying or blending or lapping must be, for lack of better term, "alternately—gentle and violent treatments." The gentle treatments such as the bale breaker pulling the cotton apart without breakage or injury, the condenser sec-

tion, cleaning, aerifying and controlling the travel of the cotton, the lattice feeders pulling the cotton still more apart, blending and aerifying at one and the same time; while the violent treatments would be the centrifugal shaking and cleaning action of the vertical opener, or the centrifugal vibrating and cleaning action of the horizontal cleaner, or the whipping, breaking up and cleaning action of the picker beaters.

"In other words, the whole process can be stated simply as follows: Opening up more and more the cotton to get it into small bunches, and each time it is opened up finer and finer to extract more dirt or foreign material contained within the individual tufts of cotton.

"That each alternate process of breaking up or refining the matted cotton shall differ somewhat from the previous in order to obtain a different effect, breaking up the cotton into smaller tufts and each time removing a somewhat different variety of foreign material.

"In other words to complete the process, to make it continuous, to assist in the mixing and to eliminate mechanical difficulties, a new form of distributor had to be worked out. This new type of distributor, entirely free from automatic devices, is about as simple in construction and operation and as effective for automatically mixing the cotton as any device of which one could conceive."

The Roller Bearing Spindle.

R. H. De Mott, general sales manager, S K F Industries, Inc., New York City, followed Mr. Beede with a discussion of "The Advantages of the High Speed Roller Bearing Spindle". This was on exhibit during the Exposition, and attracted considerable attention. It was announced that the S K F roller bearing spindle is available on the various makes of cotton spinning machinery.

After outlining briefly some of the major advantages of the plain bearing spindle, and reviewing some of the previous attempts to develop an anti-friction spindle, Mr. De Mott explained the S K F roller bearing spindle which resulted from a systematic and scientific study of the spindle problem by one of the S K F industries abroad.

Mr. De Mott said: "The S K F roller bearing spindle is a flexible Rabbeth spindle which, in its outer appearance, corresponds to the usual plain bearing spindle. The cast-iron bolster of the plain bearing spindle has been replaced by a steel one in which the upper or roller bearing and the bottom or step plain bearing are rigidly mounted. The bolster is therefore a complete unit and is mounted in the base of the spindle with a certain amount of radial play which permits the blade and bobbin to find its own axis of rotation.

"The cylindrical rollers of the precision roller bearing at the neck are guided between parallel flanges of the outer race, which race is made of a high grade chrome steel, hardened throughout and ground. The cylindrical rollers are spaced and held in place by a one-piece retainer of solid bronze, this retainer being designed in such a way that the rollers are held in place when the blade is removed from the base and bolster. The inner race of the bearing is the blade itself which, at the bearing position, is of cylindrical shape, hardened and ground. The line contact of the rollers with the outer race and the spindle blade provides for a maximum capacity within a limited space and also has a beneficial influence in that it represses the mounting movement of the spindle from the start of the operation, and consequently the so-called leaping or mounting of the spindle blade is reduced to a minimum.

"The lower or step bearing, which is rigidly held in the lower part of the bolster sleeve, is a glass hardened chrome steel cup with an included angle of 80 degrees and spherical seat. The bottom or point of the blade is also glass hardened with an included angle of 60 degrees and small ball point. The upper part of the step bearing has an angle of 2 degrees 45 minutes, whereas the blade at the corresponding location has an angle of 2 degrees 30 minutes. This step bearing is provided with oil holes and groove for the proper circulation of oil.

"In principle the blade and whorl assembly is the same as for the plain bearing spindle, that part of the blade above the whorl being the same in both cases.

"The base of the S K F spindle, although the same in principle, is somewhat simpler than that of the plain bear-

J. M. Gregg, Sec.-Treas.

ing spindle for the base does not extend up into the whorl and there need be no oil snout. The external dimensions of the base may be practically the same although in some cases, in order to provide for a proper lubrication chamber, the outside diameter of the base may be slightly larger than the base of the plain bearing spindle. The complete S K F spindle unit consists of the same three principal parts as the plain bearing spindle: namely, the spindle blade and whorl assembly, the bolster and the base, In both S K F and plain bearing spindles the units are handled in practically the same way."

After thus describing the roller bearing spindle, Mr. De Mott presented comparative figures as to power saving, lubrication, etc., etc., based on tests run in New England and southern mills, as well as plants in other countries.

Using Celanese Brand Yarns.

Robert G. Dort, M. A., of the Celanese Corporation of America, spoke next, on the subject, "Recent Developments in Fabrics Made from Celanese Brand Yarns". Mr. Dort spoke in part as follows:

"You are all familiar with Celanese yarn and fabrics and other merchandise, such as hosiery, made of Celanese brand yarn. The new developments in connection with Celanese yarn are not confined alone to new constructions in cloths, but cover a wide range such as print effects, cross-dyeing and special effects such as warp prints.

"All of you know that Celanese, due to its entirely different chemical nature and the different dyestuffs which are required to dye it in colors of excellent fastness to light and washing, cross-dyes easily with rayon, cotton, real silk and wool. The reason for this is very often little understood, even by dyers. Many fail to recognize the fact that since Celanese is made of an organic derivative of cellulose, whereas the rayons—Viscose, Nitro and Cuprammonium yarns—are all regenerated cellulose, the two classes of yarns are chemically entirely different. Tubize, Bemberg, and Viscose are regenerated cellulose yarns—are all of approximately the same chemical composition, i. e., nearly pure cellulose, chemically practically identical with cotton. Celanese yarn on the other hand is cellulose acetate, a chemical combination of acetic acid and cellulose. In this respect it is as different from Viscose, for example, as Viscose—or any other of the man-made fibers—is different from real silk.

"To this difference in chemical composition is due the difference in dyeing properties between Celanese and the regenerated cellulose fibers. To this difference in chemical composition are also due many of the practical differences in manufacture, converting and appearance of fabrics made of Celanese brand yarn compared with fabrics made of other artificial silks. For instance—and this is an important point in weaving or knitting Celanese—Celanese yarn works best in a loom or knitting machine under humid conditions. In general, the reverse is true of the regenerated cellulose yarns."

After pointing out these distinguishing characteristics of Celanese, Mr. Dort also brought out that there are also differences in luster, touch and handle. He concluded by exhibiting, and explaining, a wide selection of Celanese brand fabrics; first showing some of the all-Celanese cloths, and then some of the mixed cloths made of Celanese and silk and Celanese and cotton.

The concluding speaker of the morning was John Richardson, of Crompton & Knowles Loom Works, from whose address an abstract appears upon another page of this issue. Following his talk, the meeting was adjourned for the luncheon, which was held in the hotel ball room.

Sloan Speaks on Institute

Georgia A. Sloan, secretary, Cotton-Textile Institute, Inc., New York City, made the principal address at the Association luncheon. In beginning, Mr. Sloan referred to the unavoidable concurrence of the dates of the Exposition and the annual meeting of the Institute, explaining this as follows:

"Several weeks ago, while attending a meeting of mill executives in this city, Mr. Hines' attention was called to the fact that your Association meeting and the Southern Textile Exposition were to be held during the week of our annual meeting of members, and even though the date for our meeting was fixed in our by-laws at the time of the Institute's formation two years ago, Mr. Hines advised me by telegram in New York of this conflict in dates and directed that we carefully examine the situation to see if it would be possible for the Institute to postpone its annual meeting until some later date. We immediately did this only to find ourselves in a real dilemma. It was not possible to postpone our meeting one week because the members of the National Association of Cotton Manufacturers had arranged one year ago to hold their annual convention in Boston next week. We then considered the possibility of deferring our annual meeting until the week following the convention in Boston, only to discover by the calendar that such a postponement would bring us to the eve of the presidential election. With many of our members taking an active interest in the coming elections in the various sections of the country, I am sure you will agree that if we had selected the week before election our annual meeting would have resembled the night before Christmas with not a sound nor a member to be heard."

Mr. Sloan discussed next the return of cotton, or the very decided style trend toward cottons, pointing out how much space has been devoted to this subject by the leading fashion magazines. Increased and new uses for cotton, for wall coverings, draperies, awnings, etc., as reported by the Institute's New Uses section, were mentioned.

Mr. Sloan referred also to the active and virile associations forming the organization of the industry; and added that an equally important contributing factor to the progress now going on in the industry has been "the growing willingness of mill men to attend and participate in the discussions, to absorb the sound doctrine emanating therefrom, and to go down the byways and highways of the industry spreading the sound doctrine that they learn, and finally, to return to their respective mills to put into practice what they preach!"

The speaker also declared that there has been a marked improvement in the industry during the past sixteen months —that mills and selling agents are now showing a better appreciation of the fundamentals of sound merchandising; that greater attention is being paid to available statistics on production and distribution and a more careful analysis made into sound cost principles and the relationship of mill costs to prices.

Greenville Stages Enjoyable Luncheon

AS AN excellent feature to top off the convention of the Southern Textile Association at Greenville on October 19th, the luncheon staged in the Poinsett dining room, under the direction of Lee Harris and Edwin Howard, was a splendid success.

First, there was a record attendance. Then, there was lots of enjoyable music, and the right kind of speaking. And—the prizes. A drawing of names from a hat was held, and prizes awarded as follows:

A. E. Jury, Agent, Winnsboro Mills, Winnsboro, S. C., was given a corking good hunting gun.

D. W. Pollard, superintendent, Woodside Cotton Mills, Simpsonville, S. C., was awarded a matched set of golf clubs, woods and irons.

J. W. Hames, superintendent, Exposition Cotton Mills, Atlanta, Ga., was the recipient of a fishing rod, with reel, etc.

P. A. Smith, general superintendent, Manville Jenckes Co., Gastonia, N. C., received a beautifully studded dog-collar.

It is to be hoped that these four gentlemen could get together after the meeting, for it is understood that Mr. Jury isn't a hunter; Mr. Pollard doesn't play golf; Mr. Hames doesn't fish much; and Mr. Smith hasn't a dog for the collar. However, the affair went over in grand style and the drawings and awards —by Jimmy Vaughn—created much merriment. In the drawing, the names of several who were not active members of the association, and therefore not eligible for the main prizes, were drawn—Jimmy presenting these with cigars, cigarettes, chewing gum or what-have-you.

Dr. D. W. Daniel, of Clemson College, was the feature speaker, while the principal address was made by George A. Sloan, of the Cotton-Textile Institute. W. P. Conyers acted as toastmaster.

Eighth Greenville Show a Great Success

All Records of Attendance, Exhibits and Interest Are Broken; Exhibits Depict Manufacturing Trends in Mills

THE Eighth Southern Textile Exposition established itself as a record-breaker in more ways than by merely attracting an unprecedented number of exhibits and drawing the largest attendance on record to inspect them.

That it established records in these two respects is indisputably agreed by everyone who attended. The main building and the permanent annex, as well as the temporary structure erected to provide for the excess of exhibits for this Show, all filled to the last available space, demonstrated forcibly the value exhibitors find in the Exposition; and the throngs of mill men which milled along the aisles, from the very opening of the Show to its conclusion on Saturday, indicated the keen interest of these men in the equipment and products displayed. To William G. Sirrine and his co-workers, to Greenville's committees—and they were legion—to every one associated with the Show, in whatever relation, go the well-deserved plaudits of the southern cotton manufacturing industry for a well-planned, smoothly-executed and a profitable and interesting Exposition.

Descriptions of everything exhibited—in sufficient detail to make it worthwhile—would be well-nigh impossible in the space available for this story. It is hoped, however, to present some observations of a general character, suggested by the exhibits, and based upon opinions expressed and picked up in discussions with this man and that man who attended the Show. Later, more detailed descriptions will undoubtedly be given of some of the newest developments which were on display at the Exposition.

A General Resume of Some Exposition Highlights

IT WAS EVIDENT to the visitor that the Eighth Southern Textile Exposition, held at Textile Hall in Greenville, S. C., during the week of October 15th to 20th inclusive, represented, in the exhibits it offered, the latest trends and practices of modern cotton manufacturing. A careful survey of the exhibits—which crowded the hall in an unprecedented way, even overflowing the emergency annex—indicated that exhibitors and mill men alike were awake to the newer developments affecting the industry from the standpoint of process, method, and product.

Every process involved in the actual manufacture of cotton yarn and cloth was represented—from bale opener to cloth room—and in several cases equipment for the finishing of the goods, such as dyeing machines, printing machines, nappers, etc., etc., were on display. In addition to the actual manufacturing equipment, there were scores of exhibits offering auxiliary equipment and supplies, together with displays of related products and materials—everything, in its particular way, offering the latest in economy and value.

Looking at the show from the standpoint of manufacturing or processing equipment, the mill observer received the definite impression that the high-lights of the show could be summed up in eight words: "High Speed Warp Preparation and One-Process Picking".

Without detracting from the value and importance of the other exhibits, it was evident that those machines falling under these classifications excited the most general interest; because of their comparative newness, and because of their importance in the scheme of manufacturing and process operations.

There was plenty of opportunity for selection or preference in connection with the warp preparation equipment, because several manufacturers offered as many different types. There were the high speed spooler with automatic high speed warper; two exhibits of equipments utilizing the cone supply magazine principle in the creel; another operating a ball warper from cones; while the newest entrant involved an entirely new principle of warping at high speed over end from stationary spools, placed in the creel in magazine formation, and using the same type of spool employed in the ordinary process of slow speed spooling and warping.

When it is considered that all of these methods, including the last-mentioned which takes the yarn off over-end from stationary spools, permit the operation of speeds up to 350 and 400 yards per minute, as contrasted with from 40 to 60 yards per minute, with improved quality of yarn (without mentioning the advantages of floor space, labor saving, etc., etc.,) the importance of these new developments can be readily recognized, and the intense interest displayed in them during the week explained.

Increasing recognition of the importance of proper preparation of the cotton before carding was responsible for the development of newer methods of picking. The Greenville show this year presented, for the first time, what is known as "one-process picking", and the fact that this type of equipment had never been exhibited at a previous Exposition, drew the mill men to the several exhibits of this character located on the second floor of the Exposition building.

No details of these machines will be attempted in this brief report; some of the systems have been described, and stories of others will appear later, in these pages. The predominance of this principle in the exhibits of the machinery manufacturers, and the tremendous amount of attention given to these machines by the visiting mill men, clearly demonstrated that one-process picking has become a definite and important element to be considered in any plans connected with the preparation of cotton for the

card and for the succeeding manufacturing processes.

Departing briefly from actual manufacturing, next place must be given to rayon and its influence in connection with the Exposition. In practically every weaving exhibit this newest of textile fibers was being utilized in the production of fancy-designed fabrics; it and other synthetic fibers received consideration on the Southern Textile Association program; and there were distinctive exhibits by several manufacturers demonstrating the possibilities achieved by the use of this type of fiber in the production of various kinds of textile products. The use of rayon and other synthetic fibers in the South has increased tremendously since their advent into the manufacturing field, and appropriate consideration and attention to these new allies of cotton indicated the progressiveness of the southern mill man in staying abreast of the times—along whatever line the requirement might come.

Practically all of the major manufacturers of cotton preparatory and spinning equipment were exhibiting in full force this year, with complete lay-outs of machinery from the opener room all of the way through warp preparation and twisting. Involved in these exhibits were scores of major improvements which cannot be covered in this report. Long-draft spinning, in various forms and accomplished in various ways, large package spinning, high-speed twisting, more modern roving frames and spoolers, improved cards and drawing—these are but a few of the more important out of thousands of details of perfection which were tirelessly explained by company representatives to hundreds of interested mill men and others during the week.

There are always many new ideas exhibited at the Southern Textile Exposition, but the situation seemed pretty well summed up by one man who, stopping for a rest after a thorough inspection of the Show, said that apparently there had never been a two-year period into which so much in the way of improvement and refinement had been developed as had been produced since the Seventh Exposition held in Greenville in 1926.

Roller-bearing spindles, pressure methods of lubrication; anti-friction bearings in a multitude of applications; various types of drafting rollers; are but a few of the general refinements and developments exhibited separately and incorporated on manufacturing equipment.

One manufacturer exhibited for the first time an entirely new type of loom, manufactured in the South by a new organization. The loom manufacturers who have previously exhibited all had operating exhibits with the latest attachments and devices looking to increased efficiency, economy of operation and equality in operation on the latest designs of looms.

Humidity, an important consideration in any mill, was emphasized in several exhibits, each manufacturer offering the latest in design and efficiency that his engineering services afforded.

There were scores of other products exhibited—each with a definite and valuable application—but space does not permit a detailed outline. Power transmission, temperature control and regulation, methods of weighing and calculating, etc., etc.—formed the thought of many of the other exhibits. All in all, it is doubtful whether there is any phase of the mill which was not represented at one or more of the booths with the latest and most up-to-date equipment, material or information, so that the Exposition logically formed an almost inexhaustible source of information and knowledge for the visitor.

That the visitors who attended the Show came with serious intent and were bent on acquiring information was revealed in conversation with leading exhibitors, who commented upon the interest displayed on the part of the mill men. It was a difficult matter to inspect closely every exhibit, but many accomplished it by steady and constant effort, and felt well repaid.

Another obvious angle to the Show was that by the very diversity of the character of the exhibits, the diversification of manufacture and interest on the part of the South was demonstrated. Not only was there a wide range of products other than those pertaining strictly to the cotton mill, but an interest was displayed justifying these exhibits, indicating that the South is broadening itself along healthful lines as well as expanding from the standpoint of actual physical growth.

There was much in the Show which will be digested and applied long after the mill men have returned home. It has certainly established itself as an integral and indispensable factor in southern cotton manufacturing, and in every respect the Eighth Exposition just closed measured up to every requirement demanded of it.

Sales Conference to be Held in Atlanta

THE first annual southern manufacturers' sales conference will convene at the Atlanta Biltmore Hotel, Atlanta, Georgia, Thursday, November 22nd. The initial meeting will be a one-day conference and executives of leading manufacturing plants in Georgia, Alabama, Florida, Tennessee, North and South Carolina are being invited. The sponsoring associations are the Cotton Manufacturers' Association of Georgia, Georgia Manufacturers' Association, Atlanta Merchants and Manufacturers' Association, Southern Furniture Manufacturers' Association, Southern Clay Products Association and Southern Sash, Door and Millwork Manufacturers' Association. The Metropolitan Life Insurance Company is also co-operating with the associations mentioned.

Preston S. Arkwright is general chairman of the conference, and the program is in the hands of the following committee: George S. Harris, President, Exposition Cotton Mills, Atlanta; T. M. Brumby, President, Brumby Chair Company, Marietta, Georgia; J. J. Scott, President, Cotton Manufacturers Association of Georgia, Atlanta; W. J. Vereen, President, Moultrie Cotton Mills, Moultrie, Georgia; P. D. Yates, President, Atlanta Merchants and Manufacturers Association, Atlanta; J. J. Pelley, President, Central of Georgia Railway, Savannah; F. N. Tate, Director, Southern Furniture Manufacturers Association, High Point, North Carolina; W. E. Dunwody, President, Southern Clay Products Association, Macon, Georgia; C. B. Harman, Secretary-Treasurer, Southern Sash, Door and Millwork Manufacturers Association, Atlanta; J. P. McGrath, Secretary-Treasurer, Georgia Manufacturers' Association, Atlanta, and Milton Dargan, Jr., President, Atlanta Chamber of Commerce, Atlanta.

Contributors to the constructive end of the program will include H. J. Lucas, president of the Northwestern Terra Cotta Company, Chicago, who will speak on "Decorative Trends in the Ceramic Industry"; Paul Bonner, vice president, Stehli Silk Corporation, New York City, on "Organizing for Style and Design"; George S. Harris, president, Exposition Cotton Mills, Atlanta, on "Adapting Cotton to New Uses"; S. E. Conybeare, president, Association of National Advertisers, Lancaster, Pennsylvania, on "Color and Sales Promotion"; L. P. Putnam, merchandising counsellor, Southern Pines Association, New Orleans, Louisiana; Hugh A. Murrill, Jr., editor, Southern Furniture Journal, High Point, North Carolina, on "Market Analysis and Furniture Style Trends," and other leaders in the manufacturing and scientific distribution of the distinctly Southern commodities included in cotton textiles, ceramics, furniture and lumber manufacturing.

Mr. James L. Madden, third vice president of the Metropolitan Life Insurance Company, and head of the business research department of his organization in charge of the policyholders service bureau, will show the extent and importance of scientific research in connection with the problems of production and distribution.

Discussion on WASTE at Raleigh Meeting

Eastern Carolina Division Meets at Textile School and Develops Interesting Figures and Suggestions on Waste

WASTE in all departments of the mill formed the basis of the discussion of the Eastern Carolina Division of the Southern Textile Association, held at the North Carolina State College, Raleigh, N. C., on Friday, October 12th. D. F. Lanier, superintendent, Oxford Cotton Mills, Oxford, N. C., presided as chairman of the division, and a number of interesting points with regard to the reduction and prevention of waste were developed.

Running Different Staple Lengths.

The discussion started off following a question by M. R. Vick, Rosemary Mfg. Co., Rosemary, N. C., who pointed out that the question of waste in running two staple lengths together is quite a problem. T. W. Mullen, superintendent of the plant, declared that more attention is paid to varying staple lengths than was the case several years ago; and C. S. Tatum, division manager, Consolidated Textile Corporation, Raleigh, N. C., added that even in the same bale there is a variation in staple length which adds to the perplexities of the situation. Mr. Vick was asked whether he runs his different staple lengths together or separately, and Mr. Mullen explained that he tries to run the better cotton on the warp and the shorter cotton on the filling; the better grades on finer work and poorer grades into the coarser numbers. As to making changes for the different lengths, Mr. Vick explained that, "instead of changing the roller settings (our cotton will not vary on an average more than 1/8-inch) after leaving the drawing frames we put a little more twist in the filling so that it will run equally as well as the warp on the speeders. You can't afford to open and close the rolls every time, because you might have a little bit of long cotton in the waste, which we run in the filling, and by closing the rolls that would probably result in a little cockle, and instead of doing that we just add a little more twist."

D. F. Lanier, Chairman of the Division.

"We have had a good deal of experience in running two different staples," said N. B. Hill, superintendent, Caswell Cotton Mills, Kinston, N. C. "We use 7/8-inch for our hosiery yarns from 12s to 20s, and 1-inch from 20s to 26s, and it is much better to run the cotton separately and keep the machines the same all of the way through and have the rolls, etc., adjusted for each staple."

"Do you save any waste by separating the staples?" asked the chairman. "We keep all of the waste separate through the mill," replied Mr. Hill, "and take it back to the picker room separately, and when we are running 7/8-inch in the hoppers we put the 7/8-inch waste in, and do likewise with the 1-inch staple and waste."

"Don't you save more general waste by not mixing it?" asked Mr. Vick. "Wouldn't you have more waste in mixing it than in running it separately?" Mr. Hill replied in the affirmative.

A. B. Cates, superintendent, Edenton Cotton Mills, Edenton, N. C., in agreeing with those who had spoken as to the value of running different staples separately, added that it is important to keep a record of the waste made at each individual process for the purposes of comparison.

Figures on Waste Percentages.

At this point representatives of six mills reported, on the blackboard, the actual waste figures made at their mills during the last quarter, and these have been compiled into the table appearing at the top of page 14. In connection with these figures, it should be remembered that some represent weaving plants and other yarn mills, so that in some cases the total figures are not comparable, but a comparison at the different processes should be of interest. There was some discussion of different features of these reports, but since it was requested that the names of the mills be omitted in publishing the figures, the discussion likewise must be omitted to avoid revealing the connections of the men participating.

Following this discussion, Mr. Hill brought up the point that the amount of cotton put through the first processes, and the speed of the machines, regulates the amount or percentage of waste. "I know this from a little experience we had. We have a bale breaker that we had been putting through 10,000 pounds of cotton a day, feeding it into an open room. Recently we changed to running the bale breaker night and day, running the same amount of cotton through it, and feeding it into the hoppers directly, and when we did that we reduced the speed of the bale breaker, of course, and increased the percentage of waste taken out from six pounds to the bale to 8¾ pounds to the bale on this bale breaker, a Crighton opener, and twenty feet of English cleaning trunk. When we increased our waste back there, we decreased it on the pickers and cards, as there was no change in the total amount of waste; we simply took out more earlier in the processes."

Speeds of Licker-in.

Mr. Vick asked the question whether a 14-ounce lap run on a 40-inch card would not have a different amount of fly from the same weight of lap run on a 45-inch card, running the same weight of sliver.

P. B. Parks, assistant manager, Erwin Cotton Mills,

Durham, N. C., brought up the question of licker-in speeds, declaring that it seemed to be common practice to run about 450 r.p.m., and asking whether anyone had experimented with say 500 r.p.m., and if so, whether there was any change in the effect on the work, and whether there was a difference in the amount of fly. J. C. Cobb, of the Erwin mill at Cooleemee, N. C., brought out that tests had shown that a higher licker-in speed would increase the amount of fly. C. S. Tatum wanted to know if it was considered desirable to hold this fly in, or whether it shouldn't be taken out as soon as possible. He said he wasn't worried so much about his fly waste percentage, because if this was in the cotton it should come out, but that he looked after the scavenger waste, etc.; he said the fly waste was not a reflection upon the management, but upon the cotton, while the other types of waste were more of an index to the efficiency of the plant.

Long and Short Card Drafts.

G. E. Moore said Mr. Vick's question as to 40- and 45-inch cards brought up another to his mind which was very important, and that was the matter of running a heavy lap with slow feed or a light lap with fast feed—in other words, long or short draft. He said in his opinion that a heavy lap fed slow would give much better cleaning. In addition to the cleaning, he said it seemed that the light lap would be more apt to jerk through and make thin places. George F. Brietz, superintendent, Selma Cotton Mills, Selma, N. C., agreed with Mr. Moore, declaring that he prefers the heavier lap with the longer draft. He was asked what he considers a long draft, and replied, "around 100".

"I would call that medium," said Mr. Tatum, who added that he is running a card draft of 125. "I think a light lap is more likely to have thin places in it and not stand the strain of unrolling, giving more danger from the standpoint of unevenness."

Reverting to licker-in speeds, W. P. Ward, superintendent, Erwin Cotton Mills, brought out that in spite of excellent cleaning equipment, a lot of foreign matter will be in the lap presented to the card, and that there was a question of whether the licker-in might be speeded up 50 turns with an improved condition of the sliver, without affecting the strength and quality of the goods.

"I think there is no question that a higher licker-in speed would clean the cotton better," declared Mr. Tatum, "but there is danger with too high a speed, of injuring the staple." He said he had gone up as high as 600 r.p.m., but had reduced this somewhat, but with the higher speeds he had found better cleaning.

Removing Waste from Roving Bobbins.

At this point there was some discussion as to methods of removing waste from roving bobbins. Mr. Cates, Jr., reported a considerable saving in waste since stopping the spinners from cutting off the waste. C. A. Davis, assistant superintendent, Pilot Mill, Raleigh, explained a method his mill uses for removing waste from roving bobbins. He said they have arranged two parallel pipes fitted for compressed air, between which the bobbin is placed, the air blowing the roving off of the bobbin. He declared there had been a considerable saving in waste by this method, and Mr. Tatum added that the saving came not only in the waste, but in the wear and tear on bobbins as well, because by this method the bobbin is not touched.

REPORTS OF WASTE PERCENTAGES SUBMITTED AT RALEIGH MEETING EASTERN CAROLINA DIVISION OF THE SOUTHERN TEXTILE ASSOCIATION

	Mill A.	Mill B.	Mill C.	Mill D.	Mill E.	Mill F.
Grade—Staple	⅞-1" Middl.	⅞-1" S.L.M.	⅞-1" Middl.	⅞" Middl.	⅞" Middl.	⅞" Middl.
Bagging and Ties	4.34	4.24	4.63	3.58	4.29	4.69
Motes	2.30	1.46	1.80	1.32	1.53	1.06
Fly	.33	1.67	1.65	1.29	1.20	1.73
Dust	.21	.27				
C & S Sweeps	1.26	1.30	2.34	1.17	2.03	1.32
Weav. Sweeps	.47			.73		1.01
Soft Thread	.59	.47	.20	.14	.41	
Hard Thread	.61		.004	.73		.62
Strips	1.76	2.61	2.82	2.49	2.50	1.98
Invisible	1.50	2.69				
TOTAL	13.55	12.47	13.95	13.28	12.28	16.32

L. V. Andrews, superintendent Edna Cotton Mills, Reidsville, N. C., said he uses the Termaco machine with good results; that he placed this in the card room so that the boss carder would be responsible for this work. Another man brought out that if the spinners are made to clean off their own bobbins that this will reduce the amount of waste. He said he did not reduce the number of sides per spinner in doing this.

Mr. Tatum reported he had found it beneficial to prevent the spooler hands from taking care of tangled waste at that process, using a special hand on day rate for doing this.

E. W. Edwards, superintendent, Erwin Cotton Mills, Erwin, N. C., said that since starting up the mill about three years ago, his spinners had never been permitted to cut the roving from the bobbins, explaining that since he has to make waste, he tries to make "good" waste; in the winder room, on high speed winding for warping from cones, he said the operatives remove the pieces by slitting it off with a sharp knife, with the blade away from the bobbin.

Waste of Effort and Supplies.

Waste of labor, waste of supplies, waste of human effort, and waste of money were the four subjects brought up for the final discussion of the morning. Taking up the first, Mr. Moore said he believed that the biggest thing is in getting the right man for the right place, paying him enough and keeping him there. Mr. Parks pointed out that it is necessary in a mill, just as in a school, to have certain specific rules and regulations, that a big waste of labor comes in these instructions not being carried out permanently after the work had once been assigned. John Rose, assistant superintendent, Henderson Cotton Mills, was asked to discuss the waste of supplies. He explained that within the past 18 months his mill had spent a "barrel of money," either replacing or re-equipping with new parts practically every machine in the mill. They had not had the new equipment and supplies long enough for him to say how much the new material would save in supplies, but said he is constantly urging his overseers that the machinery must be kept oiled and the parts taken care of.

As to waste in human effort, Mr. Ward brought out that this is closely in line with the other topics; pointing out, like Mr. Parks, that there is a lot of wasted effort and lost motion in not keeping up with instructions once they have been issued. Mr. Moore brought out, on the other hand, that sometimes there are things started which

(*Continued on page* 125.)

Carding and Spinning Problems Discussed

Ala.-Miss.-La. Division is Addressed by Walter Rimmer; Practical Points on Yarn Manufacture are Brought Out

DISCUSSION of carding and spinning, centering especially around humidity, formed the program of the first general meeting held by the Alabama-Mississippi-Louisiana Division of the Southern Textile Association. The meeting was a two-day affair, occurring on Friday and Saturday, October 21st and 22nd, at Huntsville, Ala. Oliver G. Murphy, superintendent, Shawmut Mill, Shawmut, Ala., chairman of the group, presided; the discussions being conducted by W. C. Ryckman, superintendent, Lane Cotton Mills, New Orleans, La.

RIMMER TALKS ON OPENING.

The first session, on Friday morning, was devoted to carding discussion. After the meeting was opened, Chairman Murphy introduced J. Walter Rimmer, of Pawtucket, R. I., who made a brief talk with reference to opening and mixing, picking, and carding subjects. Being connected with the H & B American Machine Co., Mr. Rimmer based his remarks upon examinations of and experience with many different lay-outs of equipment in this country and other manufacturing centers of the world textile industry.

Left, O. G. Murphy, Divisional Chairman, and Right, D. S. Cook, Assistant Chairman.

Mr. Rimmer started first with opening, to which he said much attention had been given in recent years; though, until recently the subject had been neglected in this country. He explained first the development of opening methods, from the original practice of using a hopper bale breaker—a machine with four lines of two sets of rolls similar to a drawing frame—to the present practice of using three or four different types of machines in line. The hopper bale breaker, he said, "was superseded by the regular hopper bale opener, which takes care of the cotton as it comes to you today, in good shape, unless it is highly compressed; then other methods should be used. Last year there was quite a lot of high-density cotton which was a problem to handle. In the old days we had high-density cotton, but we used different methods of opening. We first took a bale breaker, which pulled the cotton apart, and the cotton was afterwards stored in bins for a week. We used to try to put as many bales through there as we had marks of cotton. . . We are more or less getting away from this blending idea, and I do not think it is altogether to the advantage of the mill. I believe blending is a good thing."

Mr. Rimmer brought out the fact that many mills nowa-days are putting through great quantities of cotton, and that blending is probably being eliminated in an effort to reduce the pay-roll by cutting off hands. However, he pointed out, with Egyptian cotton, for example, it is difficult to do; it requires ageing and ageing bins. As most mill men know, he said, cotton cannot be cleaned in a wet state, and long staple cottons are apt to be stringy and make it necessary to have an opening room that is fairly dry. He pointed out that many mills store cotton in leaky warehouses, and in wet, rainy seasons the cotton gets thoroughly soaked. He believes every mill should be provided with leak-proof warehouses, but at the same time, that the warehouses should carry a certain percentage of moisture so that the cotton will not dry out; six per cent, he said, is not too high for cleaning. In the opening room, he said, the cotton should carry about five or six per cent, as the cotton will clean with that content: "and I believe the same thing would be to advantage in the picker room."

Touching upon opening machinery, he said "the Crighton or vertical opener is extensively used, and I believe this is a very good machine, if properly used, but I find in going around that in sixty per cent of the mills they do not handle the verticals properly. They are being fed wrongly. They are over-crowded. The Crighton opener was never intended to put through 60,000 pounds of cotton in fifty hours. In the old days I remember we thought 35,000 pounds was really too much cotton to put through a Crighton opener. I think they had a better method of feeding. The cotton was fed on what we called the feed table, which was a small porcupine opener with a long lattice, and the cotton was fed as you feed it now with the hopper bale opener. This porcupine feed table broke up the cotton to a fine density, which is necessary if a Crighton is to be operated efficiently. The Crighton is dependent upon a current of air to draw the cotton out of it. Some people believe the blades are set to draw the cotton up; but they were made to allow the draft of the cotton so it would get the shaking up. The method today is to connect a pipe directly to the Crighton and draw the cotton 200, 300, or 400 feet, which is wrong. You cannot control a current of air through a pipe of that length connected to a Crighton."

"What is the function of the Crighton?" Mr. Murphy interrupted to ask.

"The Crighton opener was meant for a cleaner," replied Mr. Rimmer, "for the simple reason that they always used an opener in front of it. One object of the Crighton is to bloom the cotton and throw the dirt out; if it isn't intended as a cleaner, why does it have the grids in it?"

"If it is to open the cotton, why was the porcupine beater in front of it?"

"Because we wanted to get a cotton of a fine density," replied Mr. Rimmer. "The cotton is fed through an 8½-inch hole, and is struck by a single blade, and if the cotton isn't of fine density you will have a current of air pulling at it, and the heavy cotton remains too long in the machine, and if it is of average staple, you will get stringy cotton."

Another thing, Mr. Rimmer said, is that it is much better to have a cage section connected directly to the Crighton opener for the reason that this permits a control of the draft. He discussed other opening equipment, such as the "modified types of willows", as he called the horizontal cleaners. In his opinion, considering the required horsepower, type of cleaning, etc., the vertical type of cleaner is to be preferred over the horizontal type.

He recalled that Crightons have been used in double and triple tandem, but said this idea is losing favor. It is preferable, he said, to have a cylinder opener in front of a Crighton rather than two of the latter in tandem.

Someone asked about the speed of the Crighton opener, and Mr. Rimmer replied that this depends on the grade and staple of cotton, as well as the quantity being put through. "There is no one who can tell what you should run; that can only come by experiment, because you might be putting through 40,000 pounds, and another man says he is running 800 r.p.m., but he might be putting through only 20,000 pounds. It is a local problem, but there is a guide: the longer the staple of the cotton is, the slower the speed with a lighter feed; and the short staple can be run faster with a heavier feed."

"The setting of the beater," continued Mr. Rimmer, "should always be governed by the amount of cotton put through. We think that 35,000 pounds of cotton in 54 hours is sufficient if you want to get one hundred per cent efficiency out of the machine." In connection with this he brought out that some mills shut down the openers to clean them, in which case, while they may figure on putting through a certain amount in 54 hours, they are really doing this in about 40 hours, which increases the load on the machine. He said his belief is that from ½-inch to ⅝-inch is a good setting from the beaters to the grids, but that some mills need space to put the cotton through. As to speeds, he said that for Egyptian 1⅜-inch stock, 500 r.p.m. is about right, while between 800 and 1,000 r.p.m. is good for American cotton, depending upon the quantity being fed.

THE PICKER ROOM.

"The picker room is another big problem," Mr. Rimmer continued, "because there are so many different kinds of pickers, and because there are Buckley, three-blade, Kirschner, two-blade beaters, adjustable bars, etc. Then there is the dust chamber, fan speeds, dust flues, etc.

"Before you make a picker room you make a dust chamber. And you will find a big percentage of the mills are poorly equipped in regard to a dust chamber." He mentioned that many mills have increased their equipment without changing their dust chamber. He explained it is easy to figure the air discharge of a picker room since the picker fans discharge one cubic foot of air per revolution, so that a fan revolving 1,000 r.p.m. will discharge 1,000 cubic feet of air per minute; and that a No. 7 fan will discharge approximately five times as much. The bottom of the flue, he said, should equal the combined areas of the fans. The height he said should be at least 45 feet as that puts it up in a rarefied atmosphere. "If it is too low you will find fly all over the lot."

PICKER BEATER SETTINGS AND SPEEDS.

Going back to the pickers, he took up settings of feed rolls to beaters and speeds of the beaters and settings of the bars. He said a setting of ¼-inch from the feed roll "doesn't mean a thing for the simple reason that there are pickers of different makes and of different years. In some instances you will have a three-inch feed roll, and in another 2½-inch, and another a two-inch. The distance from the bite of the feed roll to the path of the beater varies according to the size of the roll; in reality the settings to beater should be set from where the cotton is held. You may have a roll that works on pedals; it is over to the front and it is necessary to set it further than where the two rolls are connected to the beater." As to the grid bar settings, he said very few mills get full efficiency from the bars due to proper setting; he said, "if you set 7/16 on the first bar it should be twice or ⅞-inch at the bottom." He does not like the adjustable type of bar, declaring he prefers the stationary bar which is fool-proof and cannot be tampered with so easily.

Mr. Rimmer said the proper fan speed is the one which will draw the cotton to the cages evenly and allow the motes to drop through the bars.

Taking up methods of feeding, he said, "We have different methods of feeding—hand feeding, automatic timing methods, and the method of feeding which is controlled from the hoppers." The hand method is dying out, he said, and he expressed the opinion that the method by which the amount is controlled by a swing lever in the hopper is by far the superior because it gives individual control to each hopper.

"Some mills have all blade beaters in their breaker pickers," he continued, "and some are equipped with Buckley, and some with three-blade. There is a tendency to go to the Buckley in openers and they are using the Kirschner and blade in the finisher." As to the beater speeds, he said there is a correct speed for beaters within a range which most men never have known exactly. He recommended 900 to 1,000 r.p.m., for a two blade beater, and a little lower speed for the three-blade. As for the Buckley, he said with the 18-inch type running 1,050 r.p.m., the 30-inch at 650 r.p.m., and the 41-inch at 450 r.p.m., would give about the same surface speed.

BLOWS PER INCH IN PICKERS.

He next discussed blows per inch, pointing out that on low-grade short staple the blows per inch must be increased; and on long staples it must be decreased. He reported the figures of a large tire cord mill, where two processes of picking, with two beaters in the breaker, are used. This mill delivers 14 blows per inch on the first beater 17 blows per inch on the second, and 28 blows per inch on the beater in the finisher, making a total of 59 blows per inch.

He said he knew of another mill with one beater in the breaker, and one in the finisher, where practically the same total number of blows were secured, with similar results in cleaning and opening.

Beaters should never be set right on the staple, he said, but over it, probably ¼-inch. The Buckley beater is a different proposition, however, he said.

Discussing the relation of fan draft to evenness, he pointed out that "if the draft is spotty you will have spotty laps, with thick and thin places; the yarn may measure all right, but it will be uneven."

On the list of questions for the meeting, it was asked why the last two yards of a lap were heavier than the rest. Mr. Rimmer said he had had a test made on this, and found on a peeler cotton lap supposed to weigh 12-ounces, that the weights of the last two yards were 13.60, and 13.10-ounces; and on one supposed to be 10-ounces, they were 11.40 and 11.50-ounces. He said he attributed this to the fact that when the picker is stopped, there is a mass of cotton between the beater and the cage, and that while the fan continues, this is put on the cages by the draft.

Discussing the weight of laps in the picker room, he said if humidity were put in, de-humidifying must take place also. He described a method he had seen, in which the man had a small extension to the room in which radiators were placed, with a spray of water on the outside. When the humidity gets too high, it automatically closes, and the radiators start working, and when it is too low, the spray works and increases the humidity. He pointed out, however, that this is a local proposition to be worked out individually. He mentioned a chart he had devised, based on the variation in accordance with the hygrometric reading, on which the hygrometer finger points to the weight of lap which should be made.

Cards.

Most mills over-crowd their cards, continued Mr. Rimmer. He said a good rule is to have more points on the card wire than the number of fibers being presented. In other words, he said, if there are 1,000,000 fibers in the cross-section of a lap, and the licker-in makes 350 r.p.m., there should be enough points passing a given point to take care of that number of fibers; double on the cylinder, the same on the flats and the same on the doffers.

Mr. Rimmer advocated progressive settings on cards, pointing out that the setting should be wider where the cotton first goes in, adding that the flats have a heel for that purpose. He touched, in conclusion, upon the variation in waste from different cards, declaring that it would surprise many men to know the difference in waste percentage being secured from different cards if they would investigate the matter.

HUMIDITY IN THE PICKER ROOM.

Following Mr. Rimmer's talk, Mr. Ryckman assumed charge of the round-table discussion. The first question asked for discussion on the advantages and disadvantages of using humidifiers in the picker room, and Mr. Ryckman responded to this with his own experience.

"We have humidifiers in our picker room," he said, "but having been only recently installed, we are not in a position to say what advantages we get. We do know from tests that we do not put in any extra moisture in the cotton, but we did succeed in holding what we had in it when we started. For instance, cotton naturally contains between 7½ and 8 per cent moisture, and when it is opened up and aerated it loses quite a lot of that moisture, especially when the humidity on the outside is low. We made a test and found one time that where the relative humidity on the outside was 43 per cent, with a temperature of 76 degrees, giving 5½ per cent regain—we tried to hold 65 per cent in the picker room, and our breaker lap showed it contained 6¼ per cent and the finisher lap had 6½ per cent." He explained, in answer to D. S. Cook, that he uses atomizer humidifiers, located on the wall about ten feet in front of the finishers.

Someone asked if the moisture in the laps makes the card sliver run any more even. "We believe it does," replied Mr. Ryckman. We don't have that up-and-down movement. It doesn't make the individual yard weight any better, but it keeps the fluctuations down in the card room and therefore reduces the changing of gears. We have a control that cuts on and off when it is almost neutral, and it works frequently."

Mr. Murphy said the thing that had always bothered him about humidifying a picker room was de-humidifying it, and asked what Mr. Ryckman does if it gets too high.

Walter Rimmer, Who Addressed the Convention on Friday.

"We close the room up and put the steam on," replied Mr. Ryckman. "We try to run around 65 per cent, and if it gets up to 68 or 70 we close up and cut the steam on."

Mr. Murphy asked Fred C. Shaefer, of the Parks-Cramer Co., if, when the steam is turned on and the room heated, whether the power of the air to absorb moisture was increased. "By raising the temperature with steam in coils, he is increasing the temperature of the room; the higher the temperature of the room, the more moisture he would absorb; the relative humidity would remain the same," replied Mr. Shaefer.

"To de-humidify, wouldn't he have to put in some kind of a refrigerating system?" was Mr. Murphy's next question, to which Mr. Sheafer replied affirmatively.

Robert B. Horsley, superintendent, West Boylston Mfg. Co., Montgomery, Ala., asked discussion concerning the advisability of operating humidifiers over the week-end, when another man had asked about the laps drying out in a large mill over the week-end. An answer was that "you might get rust on the lap pins so that they would be hard to pull and give trouble in starting up."

Mr. Ryckman explained that his main object in in-

stalling the humidifiers was to get the same amount of cotton going through at all times. With a usual 40-pound lap, he explained, sometimes there is more actual cotton in the lap than at others, depending upon the variation in humidity, even though the weight, including the moisture, might be the same.

Laps Dry Out Over the Week-End.

Referring to the question with reference to the laps drying out over the week-end, Mr. Murphy said that recording hygrometers in the mill will show that the relative humidity will go down over the week-end; and that the same condition should exist in the picker house.

"How many overseers of carding make a test on their laps to see the difference in weight between Saturday morning and Monday morning?" asked W. H. Hames, overseer of carding, Sauquoit Spinning Co., Gadsden, Ala. He brought out that when there is a wet week-end, if allowance is not made for the difference in weight the carder will have difficulty. He said he had always made it a practice to use a little "horse-sense" and, when the weather was damp, always to let the laps run a little heavy. "I went in one mill for eighteen months without changing a draft gear, and my numbers didn't vary two per cent," he said.

Mr. Murphy emphasized that "we shouldn't carry a lot of laps unless we need them. If you carry a large dead stock it costs money; if you will check up on them it will surprise you to see how much you can reduce your stock."

"Should the humidity be governed by the relative per cent or the actual grains of moisture per cubic foot?" was the next question from the chair, and Mr. Shaefer's opinion was requested. "It can easily be governed by either," he replied. "The relative under the high temperatures will have a greater amount of grains in it, whereas if it were actual it would be different. That can be determined best in the mill by a little study of their regulation. In other words, it must be handled at the individual mills as to which would be more preferable." However, he continued, the matter of the cotton regain condition makes it rather minor, as cotton regain at 65 per cent in spinning would not show a great difference between 80 and 90 degrees temperature, and that would be an average temperature for spinning rooms during the year around. "In Winter in this section you try to maintain 75 degrees, and perhaps the steam would be shut off with thermostats in the spinning room, because of the generated heat. There would be some conditions, in Summer, when the outside would be as high as 95 and 100, but the temperature in the spinning room would still be held in the 80s. Therefore, it is a rather difficult question to answer. However, you can figure that cotton regain between 80 and 90 degrees corresponding with a relative humidity of 65 per cent would not vary but very slightly."

In answer to the question Mr. Murphy stated that he uses the cotton regain method of determination. D. S. Cook, agent, Pepperell Mfg. Co., Opelika, Ala., replied in a similar manner.

"Cotton regain is by far the best to use," said Mr. Shaefer, "if you can use it. Cotton regain is standard. If you are doing any work in the government laboratories it is best to use cotton regain at different temperatures."

"In considering humidity, you must also consider temperature," said Mr. Ryckman. "If the temperature is constant, it is easier to hold the relative or regain."

"But how do you do that? It is pretty hard to do. I find a lot of variation."

"That is the object of the humidifiers," said Mr. Ryckman, "to hold it that way to govern it. I contend that the biggest good the humidifiers can do is to increase the efficiency of the operatives. There is nothing that depresses an operative more than a highly-humidified room."

"In the new crop, what do you allow in your picker room for variation?" asked W. H. Hames. "Do you allow them to weigh heavy or light? Do you mix your old cotton in with your new, or what do you do?"

V. W. Lovill, superintendent, Merrimack Mfg. Co., Huntsville, Ala., reported the use of some of the new crop cotton, stating that he runs five bales of the new in with eleven bales of the old crop.

"If you have humidifiers in the picker room, what do you find as to the cleaning of the stock? What relative humidity do you carry?" was the next question. Replying to it, Mr. Ryckman said that "we endeavor to carry 65 per cent in our picker room. It varies, sometimes down to 60 per cent, but we find we do not have any difference in our cleaning. I have come to the conclusion that from 60 to 65 per cent there is no difference."

Mr. Murphy brought out that perhaps the difference in the weight might be brought about by the moisture in the air. That is, unless the waste, etc., were dried bone-dry as was the cotton from the lap, the motes, etc., might themselves have absorbed moisture to add sufficient weight to compensate for any difference in the amount of cleaning occasioned by the humidity.

"Do you find any difference in keeping numbers?" Mr. Ryckman was asked.

"We do find less changing necessary," he replied, "although we are not up to the good brother who says he hasn't changed gears in two years. I can't say that, but in the past month we have changed gears about three times, and that is considerably less than we used to change, because our humidity in New Orleans varies so. I have seen it go from 30 in the morning to 60 at night."

In response to another question, he said he makes his changes at the speeders and slubbers, "in order to get nearer to the answer," and weighs his drawing four times a day, at 7:30 o'clock and 10:30 o'clock in the morning, and twice in the afternoon.

W. H. Hames, of Gadsden, said he weighs his drawing twice a day—9:30 A. M. and 2:30 P. M.—and "I also have the humidity tested at the same time, the actual humidity, and have that recorded at the same time." He again asked about "this green cotton and old cotton," wanting to know how many mills run it together, and what allowance was made in the picker room.

New Crop Cotton is Very "Green".

"The proper way to do that is to mix it if you have any old cotton," replied Mr. Murphy, adding that "this year's cotton is about the greenest I have ever seen, and it is high in moisture content. We found some up as high as 11½ per cent. We are just out of luck this year on new cotton. It will run bad and give trouble in weights unless you have the old cotton to mix with it, and if you do, you must do it slowly. Another thing, if it accumulates in the mill, if you let roving stay in the card room for a week or ten days you will not get over it for a long time."

"Do you recommend using old and new cotton together?" asked Mr. Hames.

"Yes," replied Mr. Murphy, "but the warehouse men will probably have a tendency to hold you up."

Mr. Hames brought out that at the meeting in Atlanta in March, as reported in the April issue of COTTON, a speaker had declared that a variation of from 7 to 22 per cent moisture content had been found in cotton bales, and he wanted to know "what are we going to do with that kind of a situation? The carder is the goat anyway, and what are we going to do about it?"

THE CORRECT NUMBER OF BALES TO OPEN.

'How many bales of cotton do you think it advisable to open at one time?" was next asked. Mr. Lovill reported that at Merrimack they open 16 bales to the unit of machinery; that is all he has room for.

"My opinion would be to govern it by the amount of space available," said R. B. Horsley when called upon. "If I could, I would open up a week's supply. We use 16 bales in a mix, but we open up three days ahead."

Mr. Hames here explained that at one time he used 20 bales, and removed the bonnet from his bale breaker, slowing down the speed of the apron, to permit a better mix. The other replies indicated it a practice to open between 15 and 20 bales at a time. Mr. Ryckman summed up the general feeling when he said, "it is my opinion that it is best to open as many bales as you can, provided you can feed off of them. But it is the hardest proposition to get the picker man to feed off of each and every bale."

WASTE REMOVED IN CLEANING MACHINERY.

Percentages of waste removed in the cleaning machinery, including the pickers, formed the subject of the next discussion. Mr. Murphy read from Department of Agriculture Bulletin No. 1418, published in April, 1927, showing that on Good Middling eastern cotton, the waste percentage up through the cards was 5.97 per cent. On Good Ordinary, he said, it was 14.40. He reported a figure of 5.32 per cent total picker and card waste on Strict Low Middling, on a test he had made. Mr. Ryckman said once he made a test on "bollies" or "dog cotton," and, including bagging and ties, got 48 per cent!

Merrimack reported six per cent through the cards, including motes, fly and strips, on Middling to Good Middling local cotton, one-third light tinges. Another man reported 2¼ per cent strips on the same cotton. Mr. Cochran's waste figure was four per cent, without strips.

"On ⅞-inch cotton, what percentage do you get out on pickers and cards to get good clean carding?" asked Mr. Hames. One man said four per cent, exclusive of strips.

J. M. Glass, overseer of carding, Shawmut Mill, outlined a method he uses of having his strips weighed separately, as well as his motes and his fly, so that each day he can figure how much of each kind of waste he made the day before.

BEATS PER INCH AND BREAKING STRENGTH.

"What influence do the beats per inch in pickers have on the breaking strength?" was the next question, "and how many beats per inch do you find it advisable to use?"

Mr. Cochran explained that if the cotton is beat too much, it will weaken the roving and yarn.

With reference to the figure of 59 beats per inch, Mr. Rimmer explained that this was on tire yarn, and was based on the lap delivered at the feed roll. He added that, "you must have a certain velocity for the beater in order to properly detach the cotton as it comes through the feed rolls. If you run too slow it is detrimental. About 1,000 r.p.m. for the beater is a maximum. There are two or three things that affect it: the thickness of the lap fed is one. If you have a big bulk of cotton between the feed rolls, you can easily damage the fibers."

Leslie E. Lane, Indian Head Mills of Alabama, Cordova, Ala., was called upon. He said they had run from 75 to 63 beats per inch, but had no definite information as to the effect. He runs ⅞-inch Strict Low Middling, using a two-blade beater.

HUMIDITY IN THE CARD ROOM.

The question of the proper relative humidity to be carried in the card room came up here. One man reported 45 per cent at the cards, 65 per cent at drawing, slubbers and intermediates, with automatic control. Other percentages given ranged between 55 and 65. Mr. Murphy

W. C. Ryckman, Who Conducted the Discussion.

asked why there should be a difference in different mills. "The coarser the work, the more humidity you can carry," explained Mr. Lehmann. "The finer hank rovings and finer slivers take less."

Fred C. Shaefer stated at this point that observation showed that between 55 and 60 per cent gave the best results. However, he pointed out, some men are "kidding themselves" into thinking they are getting that percentage; to illustrate this he said he was recently in a mill where the superintendent said he was getting 60 per cent, and that when he tested the humidity with a sling psychrometer he found an actual condition of only 30 per cent. He stressed the point that the sling psychrometer is *the* accurate way of determining the exact amount of humidity; pointing out that hygrometers will eventually choke up and become less sensitive—giving frequently a variation of between five and 35 per cent in relation to the actual condition. He declared that the wet-and-dry and precision types of hygrometers, if they are to be considered accurate, must be kept cleaned. There were several men present who expressed agreement with this viewpoint.

VARIATION IN CARD SLIVER.

The chairman presented the next question, which read, "What variation from standard weight would you consider all right on card sliver?"

One man answered that this depends upon the number of yarn being made, adding that a good average would

be between 1 and 1½ grains on either side of standard. W. H. Hames and others present immediately took exception, expressing the view that while this might be an ideal condition, there were few mills approaching it in actual practice. The majority of the men present reported a variation of around 10 grains to 12 grains. Mr. Glass said that unless the card is allowed to run a while after stripping, to get the cotton back in, it will run higher. Mr. Ryckman said it seemed to be general practice to allow the card to run a few minutes to get the weight back up. Another man reported that his biggest variation came from the lappings made on the card in piecing up, where sometimes there would be a variation as high as 30 to 40 grains. The consensus of opinion seemed to be that around 10 grains was an average variation, but that if it goes much above that it is time to investigate matters.

Mr. Hames pointed out that most mills have the second hand do the weighing, and that for some time he has used a girl for this purpose with very satisfactory results, as she has no reason for "tempering" the result one way or another. At this point he asked David Clark, of Charlotte, to relate what he had told at previous meetings, about a mill which did not set laps back on pickers. This followed an inquiry as to what could be done to prevent excessive card sliver weight variation.

Letting Laps Run Wild.

In responding, Mr. Clark said the mill in question was the Naumkeag Steam Cotton Co., at Salem, Mass., where they let the laps run wild, but have eveners on the drawing—something which he said the southern mills had discarded because the original equipment of this type had been unsatisfactory. "I don't believe there is a man here who can take four laps and find less than four yards difference in the lengths," he said, "so what is the use of running them down to a half-pound variation in weight?" He told also of an experiment which had been conducted by six men in the Carolinas, following a meeting, in which they had compared the weight of drawing sliver made from laps held to ½-pound variation with sliver made from laps allowed to vary three pounds each way, stating that their reports were that they got just as even a sliver with the latter as with the former. He stated that the trouble was in the picker logger-head slipping, that the machinery builders have never been able to perfect it so as to produce an even length of lap.

With reference to variation in spinning numbers, Mr. Clark said he didn't believe Mr. Hames would find so close a variation as the two per cent he had reported if he were to test all of the bobbins on one side of a frame.

Summing up some of the discussion in closing the Friday session, Mr. Murphy said that "from the information given here it seems that if the variation is more than 10 grains it is time to get busy. If the length of the lap is varying as much as some have said, I would check my pickers to see what is wrong. I am aware of the fact that you get a variation in the length of the lap, but I do not agree with the six gentlemen Mr. Clarke spoke of that a two-pound variation would not affect the evenness. From my own experience I would not dare allow my laps to vary that much." With regard to humidity, he pointed out that the roving in the card room is not twisted so tight, and that he prefers to put in as much water as necessary to make the work run good. The spinning room is usually the hotter, he said, because in many cases it is on the top floor. As to humidity in the picker room, he said he gathered from the discussion that a mill should go slow on spending money for this purpose. He added that, while it was not brought out in the discussion, in his opinion a mill should have humidifiers in the cloth room, but that a regain should not be carried there which would be above the normal condition of the cotton.

SATURDAY DISCUSSION ON CARDING

The next session following the close of the Friday morning meeting was opened on Saturday morning at 8:30 o'clock, when Chairman Ryckman announced that discussion would be continued on the prepared questions on the questionnaire. The first one taken up was, "Individual yardage weights of laps show usually that the last few yards are heavier than the rest of the lap. What is the cause of this, and how can it be overcome?"

Mr. Lane, of the Indian Head Mills, was called upon, and replied that, "I don't know what causes it unless the lap, as it gets large, instead of going around, gets pressed out rather straight; there isn't the tension to pull on it." He added that they had put in Morton logger-heads, which seemed to help considerably, stating that he believes the lap racks have something to do with it, because the kind he has gives less friction and the lap turns more easily.

The chairman asked if anyone had installed ball bearings on the logger-head. "We have ball-bearings in our picker room," replied F. M. Buchanan, Dallas Mfg. Co., Huntsville, Ala., "but it does not overcome this variation, although it helps to some extent. We try to keep our eveners loosened up, and the feed rolls loose, so the whole machine will start together." With reference to the ball bearings on the logger-head, he added this helps because the lap pin will turn more evenly from the beginning all the way through.

V. W. Lovill said he believes ball bearings on logger-heads help, but will not entirely eliminate the trouble.

"I might add that I am responsible for part of that question," said Mr. Ryckman, "because we had found that our yardage did vary and toward the end of the lap it got heavier until the last yard was the heaviest. We worked in every conceivable way to find out what it was; we put on ball bearings and tested them against the others but found no difference. We thought that the logger-heads in running down to the bottom were not running down the same, and consequently some machines would have more friction than others in starting up. To eliminate that we put blocks on the floor and used a gauge between the logger-head roll and the lap roll, and set them all exactly alike, and tried that out. It helped a little bit but it did not eliminate all of the trouble. We next took our frictions on the friction wheel governing the logger-head and used a cork friction instead of leather, but still we did not eliminate the trouble, although we got better laps. I thought it was on account of stopping the machine and the accumulation of stock between the feed roll and the lap pin in front, but on account of having two or three or four yards heavier, that eliminated that point. We went ahead and instead of wrapping it on the lap roll we ran it out on the floor and measured that and found no difference, so I have really given it up as a bad job, and taken it as a matter of course that we still have this heavy yard on the end."

Someone asked whether the calender rolls have a three

or four per cent draft. In answer Mr. Rimmer explained that the two gears are of the same number of teeth and the calender rolls are supposed to be the same diameter. Qustioned further he pointed out that there are six calender rolls, so that there really is a draft; the top roll has 23 teeth, the next 22, the next 21, etc., so there is a draft. He understood the original question to refer to the two two rolls between which the lap fits. Asked as to the value of ball bearings in the logger-head, he said that in his opinion a ball-bearing lap rack would have a tendency to relieve the friction.

INFLUENCE OF HEAVY CARDING ON BREAKING STRENGTH.

The next topic taken up was with regard to the influence of various factors in the carding department on the breaking strength of yarn. The first item considered was heavy carding, and Mr. Rimmer was asked for an opinion. "It is a well-known fact," he said, "that if you overload a card you do not straighten out the fibers, and they are more or less in a tangled state, and you do not clean the cotton, which has an effect on the breaking strength finally."

Mr. Murphy recalled Mr. Rimmer's statement that the number of points on the clothing should exceed the number of fibers presented in the lap, and asked if having more fibers than points would not be considered heavy carding.

"As long as you have a surplus of points operating on the cotton, you are carding," replied Mr. Rimmer. "When you present more fibers than points you are over-loading the card."

"There are mighty few of us who would be able to determine the number of fibers presented. Do you have any figures on that?" asked Mr. Murphy.

"I can get that for you," replied Mr. Rimmer. He pointed out that the number of points on the wire can be determined accurately, but that of course the number of fibers in the cross-section would have to be approximated.

At this point information as to how much is being carded was requested. Mr. Lovill said that changing from 70 to 155 pounds per day he could notice a difference in the breaking strength. "We have increased ours and notice a difference, we get a lower breaking strength," reported Mr. Strather.

Mr. Murphy told of an instance in which it became necessary to run a harsh instead of a soft cotton, and that he had to reduce the amount of cotton being put through the cards in order to get the desired breaking strength out of the harsher stock. "I don't think we were over-loading the card, because we were putting through 150 pounds, and dropped down to 140 pounds, and got a satisfactory condition."

Mr. Rimmer pointed out that different kinds of cotton require different numbers of wire. "We know that for the finer and longer staples we require more points, and that brings us back to where we started."

EFFECT OF TENSION ON BREAKING STRENGTH.

The question of card room tensions came up next, and when called upon Mr. Buchanan said he thinks it depends on the humidity. In dry weather the ends will tighten up. If the tension gets too tight it will stretch the roving. Also, he said, it can be stretched on the cards. "By watching the humidity you can keep it more nearly the same," he said. "I don't change tensions one-tenth as much as we did before we put the humidifiers in." Robert B. Horsley, when called upon, responded,

"We know if we let our tensions get tight on the drawing or fly frames that it will materially reduce our breaking strength. I don't know what rule you would go by except the rule of experience, as to whether or not to change tensions. The overseer of carding will just have to watch his frames and keep his tensions so the ends are not stretching."

"Has anyone ever made a test by knowingly putting on the wrong tension gear?" asked Mr. Ryckman.

"I have never run a test for it, because I just know it is wrong," said Mr. Murphy. "My father was a mill man ahead of me, and he was a carder before he became superintendent of a mill, and from the very first time I came into the mill he began to harp to me about tensions. He said that a tight tension is one of the most serious defects that a man could allow to slip into his mill. There is a point where it will break down, and then there is a point where it is perfect, and between the two, as Mr. Horsley says, there is a point where experience comes in. Still, at the same time, I think it is so important that it shouldn't be left entirely to the foreman of the department. I don't think any of the responsibility for it should be taken from him, but I think the superintendent himself should visit his card room often enough, especially during changes of weather, to keep up with the tensions. I know our tensions have at times been too tight, because our breaking strength has gone off. I like to see just a little flapping of the ends on the fly frames when they are running steady. The frame hands don't like to run it like that. They have a tendency to run them tighter than they should.

"When you tighten up on your tensions in any part of the mill you will have trouble with breaking strength, and it is hard to put your hand on it if they have been slackened after the trouble hits you. We had an experience on cards running a type of cotton different from our regular kind. The cards broke down, on the regular stock, but on the other it was running good, and we discovered for the first time that we were running a little bit too much tension on the regular stock."

In connection with tensions, Mr. Rimmer pointed out that the size of the holes in the trumpets can have an effect on the tension; if they are too tight they will stretch the strand, and if too large they will not properly condense it. Mr. Murphy told of an experience his father had in the early days, when the trumpets on the cards were adjustable. He said the mill encountered trouble and traced it back to these trumpets, which had been closed up too much.

SETTING OF FEED PLATE TO LICKER-IN.

The setting of the feed plate to the licker-in and its influence on breaking strength came up next. Mr. Rimmer pointed out that an influence on this is the length of the nose on the feed plate. He pointed out that for longer staples a longer nose on the plate is used; it brings the point of contact further away from the bite of the feed roll. He declared that up to 1/16-inch staple it is difficult to set the feed plate wrong, stating that between a 10 and a 15 gauge will be all right. "But if you set too far away you begin to make a weak web, which will produce a weak sliver and a weak yarn," he said. "When you are running the longer staples there is a feed plate with a

(*Continued on page 77.*)

Some Practical Pointers on Weaving Rayon

A Loom Expert Discusses a Few of the Common Difficulties Involved in this Type of Work and Suggests Remedies

A VALUABLE paper on the weaving of synthetic fibers was presented at the Greenville meeting of the Southern Textile Association by John Richardson, whose connection with the Crompton & Knowles Loom Works, Worcester, Mass., gives him an intimate contact with the rayon weaving industry and an opportunity to study the problems involved in handling this latest entrant into the types of fibers which the mill, to keep abreast of the changing style, must adapt.

In Mr. Richardson's remarks we found some especially interesting suggestions as to methods of preventing difficulties in the weaving and preparatory operations; and these have been extracted and are reproduced upon this page.—The Editor.

FINER qualities of all-rayon goods are being made possible by the rayon makers perfecting their processes, not only as to finer counts and ability to take twist, but also as to strength of the yarns. Also today, rayon can be made without the usual metallic or shiny luster, which has always marked it as an artificial silk. Some samples of all-rayon goods would defy practical silk men to tell whether they were silk or rayon if they relied only on the feel of the goods. This improvement must lead mills to the conclusion that they must have a loom especially adapted to the weaving of rayon.

Principal Defects; Set Marks.

The principal defects found in all-rayon goods are set marks, stickers, hang-picks, and shuttle marks. Set marks are known by many other names in the various mills, such as jambs, tight marks, shires, etc., and by this is meant simply that when the loom has been stopped for any reason at all, a mark is left upon starting up because the proper joining has not been made. It usually appears as too many picks being put in at one point so that they are jammed together. Aside from seeing that the take-up is free from all play and that the rocker shaft and lay connector studs are not worn and that the let-off is properly functioning, there are three major aids in overcoming set marks.

How They Are Overcome.

First, there must be a swing-reed such as is found in a silk loom and the spring used should be of the very lightest, so light in fact, that one can, by hand, swing it back. There should be just enough spring left on the backstay so that at the time the shuttle passes through the shed the reed is against the lay. This tends to make a delicate beat-up and to prevent a crushing in of picks where the weaver has failed to make a perfect matching after the loom has been stopped. It should be added that on rayon crepes there is a heavier beat-up required than on other qualities. The reed should, therefore, be easily adjusted for light or heavy beat-up.

A second precaution is to have the loom stopped with the shed closed as much as possible and with the warp stop and filling stop motions so set as to accomplish this, and the loom should stop without a sudden jar. It is imperative that the shed be closed when the loom is left for the night. There is practically no elasticity in any of these rayon yarns as compared with silk, and so if the shed is held open and the yarn is stretched for any appreciable length of time, it shows up in the goods very much like a set mark.

A third aid in overcoming these imperfections is for the weaver to pull the lay forward by hand at the same time he puts on the power. This helps the lay in getting into motion and results in a more even beat-up.

Stickers.

Another group of imperfections which appear in practically all woven rayon goods are stickers and hang-picks. Stickers are caused by the warp ends rolling and hanging together in the leases. This shows up like a streak in the cloth where the ends have been stretched for a certain period and then suddenly released. Stickers do not come from the loom. They are the result of poor warps and poor slashing.

Hang Picks.

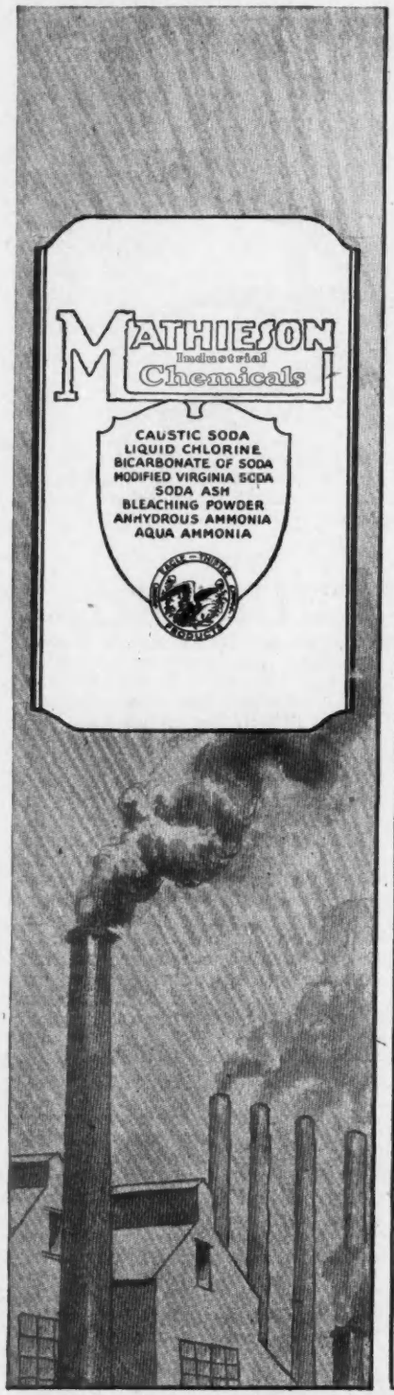
Even the finest rayon does not approach the usual sizes of silk, and so, wherever a knot is tied in a rayon warp, it is a larger knot than is usually found in a silk warp. As these knots come through the harnesses and reeds and approach the fell, they often catch shots of filling and keep those shots for a short time from drawing up snug against the fell. Finally, however, after three or four shots have been inserted, they do slip over the knot, but the mark is left. It shows up as a little hole in the goods and can always be detected as there is a knot nearby.

The first precaution to be taken with a view to overcoming hang-picks, is to teach the weavers how to make a flat or rayon knot.

Secondly, is the use of the Knowles head in overcoming these defects. The quick and mechanical action of the harness frames under control of the head tends to keep the warp members separated and prevents one member having a knot from getting tangled with members on either side. The Knowles head changes the harnesses in about half of a revolution of the crank shaft, whereas, with a dobby, the harnesses are in motion 80 per cent of the time. Furthermore, when sectional cylinder gears are used in the head, the harness frames change two at a time, and so only a fraction of the warp ends are passing each other in the same plane.

Shuttle Marks.

It is most essential that the shuttle in a rayon loom have a true flight. Shuttle marks are bruises and are at present prominent in most all rayon fabrics. The Knowles head produces an absolutely clean and perfect shed. To get the maximum benefit from this, it is essential to have harness cords which will hold the shed adjustment.



There is no substitute for experience

YOU have an important technical job open in your plant, let's say, and you are looking for the right man to fill the position. You need—and you make sure you get—a man with the necessary background of experience. And rightfully so—for in some things there is no substitute for experience.

Soon you will be placing your contract for next year's requirements of Liquid Chlorine—a highly technical commodity, as we all know. Is not the proper background of experience just as essential in filling this job as in any other important job in your plant?

Mathieson's broad experience in every phase of manufacturing and distributing Liquid Chlorine is your best guarantee of satisfactory service. And you will pay no added premium for the wide knowledge and technical cooperation developed by Mathieson in serving America's largest industrial users of Liquid Chlorine.

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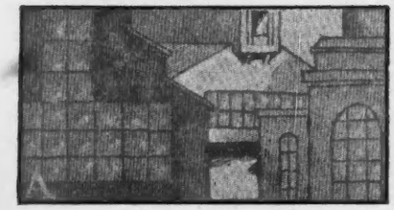
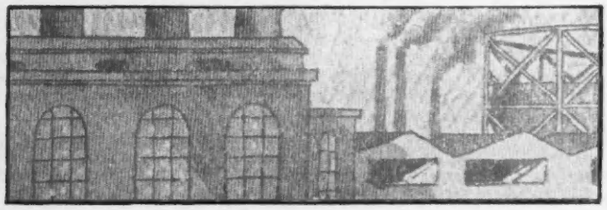
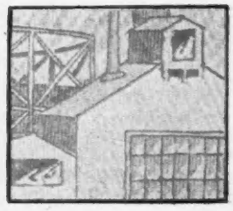






Mr. Cox says, in the September 29th issue of the *Textile World,* in speaking of improvements in equipment, "The greatest advance during the year has been in the more general use of silk machinery for rayon processing instead of attempting to make over cotton, woolen and worsted machinery. With a few exceptions, silk machinery is better adapted to handle rayon." Our investigations have borne this out and have brought us to the conclusion that for fine all-rayon cloths, which are bound to come on the market in increasing quantities, we should advocate a Knowles head loom of general silk construction, but with certain improved features. Among these chiefly is the swing-reed feature mentioned previously. Also, the warp should be brought well back of the harnesses as it is in the silk loom and it is better not to run the warp over a whip-roll. Taking such a loom as we have ready for you, teaching your weavers how to tie first knots, learning yourselves that excessive tension on the warp or in the shuttle is injurious to the cloth, using steel reeds, and flat steel heddles as supplied to the silk weaving industry, and running the looms at a conservative speed, you should have a minimum of trouble as far as the weaving is concerned.

Speed of Looms.

It has been found by most of our customers, conducting independent experiments, that better results are obtained by running the looms at a slower speed than is the general practice in cotton and silk mills. One silk mill has decided that on rayon crepe de chine 122 picks per minute gives the greatest perfection and production.

TROUBLES IN THE PREPARATORY PROCESSES.

As stated earlier, the mill that goes in for the new types of fabric is going to find at least 50 per cent of its troubles in the preparatory processes.

Sizing.

The slashing or sizing presents a principal problem and there is a lack of entire agreement as to what is the best sizing to be used on the various qualities of rayon and as to when sizing is needed and when it is not.

One organization believes that all warp yarns which have six turns or under, should be sized, and that above that, it is unnecessary to size. On the other hand, another sizes all their warps, even their voiles, with their approximately 30 turns.

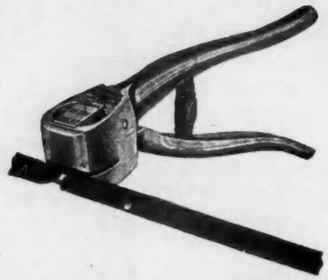
Rayon filaments are not as strong as raw silk filaments, and they have a tendency to break in the weaving operation. Not all will break as a rule, but just a few of the filaments, and this makes the yarn fuzzy. The purpose of sizing, therefore, is to give each warp member a slight bath of glucose preparation which will hold all the filaments together and permit the yarn to slide through the drop wires, harnesses and reeds without shafting. As you put more and more twist into the yarns—30 twists for voile and up to 70 twists to a rayon georgette—the bad places have been eliminated in the spinning and redrawing processes and only the best comes to the loom. Bad or weak places break down in the spinning.

"Textile Calculations and Constants."

"Textile Calculations and Constants" is the name of a booklet published by the E. F. Houghton & Company, Philadelphia, Pa. The calculations and constants published in this booklet were compiled by F. Gordon Cobb. This booklet is published to aid those who are engaged in the textile industry.

Two New Safety Devices

The Stanley Works, box strapping division, New Britain, Conn., has recently put on the market two new safety products, Stanley Eversafe Box Strapping and the Stanley Eversafe Round End Cutter. It is pointed out by the company that these new devices present



three new safety features, namely: Round safety ends, with no chance of scratching or cutting the workmen's hands; round edges, and sterilized Japan finish, which is clean, reducing probability of infection.

Greene Announces New Company.

Edwin Farnham Greene, formerly treasurer of the Pacific Mills, has announced the formation of Edwin Farnham Greene & Company, Incorporated, to act as textile managers and to assist in planning and financing consolidations and reorganizations. The new organization has offices at 40 Worth Street, New York City.

Mr. Greene says, in announcing his company, "It is true that the industry is in a difficult position today. But the difficulties have been due to the suddenness with which trends and preferences changed quite as much as to a laggard about-face by the industry. Its main problem is not a fight for existence. The job ahead is merely that of catching up and getting into step with the new order of things. This readjustment and realignment offer, in the whole textile field, opportunities for constructive work such, perhaps, as have not been so extensively presented to any other industry. Realizing that opportunities of real magnitude are waiting those who have the courage and the foresight, the organization of Edwin Farnham Greene & Co., Inc., has been formed to assist in the great problem of reconstruction and reorganization."

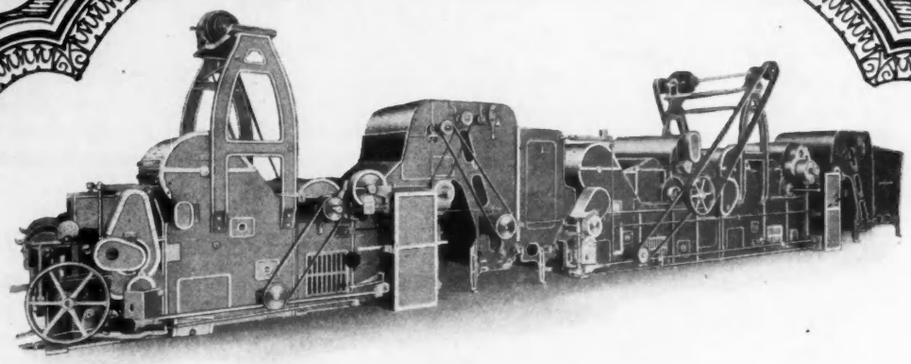
"Steel Tables for Examining Hosiery."

The installation of steel examining tables is recommended by David Lupton's Sons Company, Philadelphia, in a recent bulletin, as being an important means of speeding production. It is pointed out that a logical place to keep production from lagging is at the examining table where the work often has a tendency to pile up if the operator lacks adequate equipment to perform her duties. Examining forms may be readily fastened to the upper level of the table, thus permitting the operator to sit while at her duty. A bin is provided for perfect stockings and another for seconds, the operator is not hampered by a lack of space to dispose of the examined goods.

Lupton's latest model examining table is built in units that may easily be fastened together. Exposed screw heads have been replaced with slotless head bolts, thus minimizing the number of seconds that might result from snags on the screw heads.

Quaker City Chemical Company Builds Southern Plant.

The Quaker City Chemical Company, Philadelphia, Pa., has started construction on a factory warehouse and plant in Knoxville, Tenn. This plant and the company's sales forces will be under the management of W. S. McNab, who has been the southern representative for the past ten years. In addition to manufacturing sulphonated oils, rayon oils, softeners and dyeing assistants of all types, they will handle a complete line of chemicals for the textile industry and Pennsylvania lubricating oils for the O. F. Zurn Company of Philadelphia. The laboratory will be under the supervision of Robert Cowan, an experienced manufacturing chemist.



SACO-LOWELL ONE-PROCESS PICKER

(with Synchronized Control)

Now Operating Extensively in both Northern and Southern Mills

ANOTHER triumph for SACO-LOWELL engineers. This one-process Lapper, designed especially for American mills, has been successful beyond the hope and expectations of its designers. It is a totally new Lapper and has been thoroughly tried out under practical mill conditions.

Its first and foremost advantage, the saving of labor, has been proven beyond a doubt. There is no handling of the cotton from the time it is fed to the Bale Breaker until the lap is removed from the calender ready for the Card-Room. Its efficiency is unexcelled.

On every installation, both North and South, our One-Process Picker with synchronized control, has given better results than were being obtained on the two or three process system, as regards cleaning, appearance of lap, and evenness yard for yard, and lap for lap.

Facts, figures, specifications, and organizations of Saco-Lowell one-process Picking in successful mills are now available. May we place them in your hands? Call on any Saco-Lowell representative.

The July issue of the Saco-Lowell "Bulletin" carries full details of the performance of these machines. Look for them in your copy.

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CURRENT TOPICS

Reports On Kinds Of Cotton

THE first of seasonal reports on the grade, staple, tenderability of cotton ginned during the current season was made by the United States Department of Agriculture on September 28. Others will be put forth during the ginning season and there will be reports in detail on cotton ginned in the various states. These reports on kinds of cotton produced and available should be very helpful to all branches of the cotton growing, distributing and manufacturing industries. One great deficiency of cotton statistics in the past was in the fact that the figures in the main treated cotton as just cotton, taking little note of its many differentiations into grades and classes. Reports on grades and staples of cotton produced in various sections show wide diversity in the consumptive requirements of mills and kinds of cotton ginned in different localities of the South. The mills of practically every southern state have to go beyond the state for a large portion of the cotton consumed. Thus one presumed advantage of mills being adjacent cotton fields is in much part lost. Production can be brought much closer to consumption than is the case, and with great benefit to the producers.

Taxes And The South

THE United States Chamber of Commerce, in its liking for the non-controversial, returns to the subject of high taxes, against which the big trade body exclaims in terms of appalling statistics. Average public expenditures are now so enormous, it says, that an hour a day is devoted by all workers to the carrying of this burden on the country's citizens and businesses.

Sectional statistics on taxes probably would yield some findings which the chamber, being a national body, might not care to exploit. The greater part of the tax burden and all of its enhancement in recent years owes to state and local impositions, which continue to grow. These have grown on the whole with fair uniformity in various sections of the country. But the base from which they have grown recently was not uniform, with the result that the burden now varies as to size in different areas and localities. On the whole it is much less oppressive in the South than in the East, Middle West and Far West. This is one reason why industry has gone forward faster in the South than in older industrial areas. Some manufacturing has been moved from another section to the South almost wholly because of taxes.

Isn't this advantage and attraction something which the South should take care to preserve? The section has a comparative as well as what the economists call an absolute reason for keeping state and local taxes at the very lowest practicable levels.

Letting Private Agencies Make The Law

RULES agreed on by the Federal Trade Commission and the cottonseed oil mills industry, or the portion of the latter that took part in the proceedings, include the following:

> "That clandestine violation of any of said resolutions, those accepted by the Federal Trade Commission merely as expressions of the industry as well as those approved by said commission, shall be deemed unfair methods of competition."

This may be carrying the trade practice conference method—now being extended apparently with the view of applying it to all industry—to a dangerous and possibly self-defeating extent. Laws give the Federal Trade Commission considerable discretion as to what should be held an unfair trade practice but the courts frequently have refused to uphold the use of the discretion as made in particular cases. The law still is jealous, and rightly so, of attempts to add to its already over-expansion. Legislatures and courts have produced entirely too much law in recent times. If trade bodies are allowed to create what is tantamount to law there may be a transference of law-making from public to private agencies. And this is what substantially would happen if the foregoing rule should become a precedent. Practices which those "speaking" for the trade condemned as unfair would thereby become illegal under the ruling.

Chairman Humphrey and Federal Trade Commissioner Ferguson dissented from the agreement on the rule, holding that outlawing in advance could apply to only what clearly would be illegal even if there were no code of practice agreed on by the trade. This view of the principle has been taken of other codes set up for numerous industries by the conference method. Those codes mark noteworthy advances towards better business ethics and more economical trade practices. To carry the codes to the extreme point aimed at by the rule quoted may endanger the method itself, and this would be bad.

An Election is Held

THIS is written prior to the November election, when the air is filled with the noise of political combat, of a kind which to many of us seems terribly important. It will appear in print after the election. What of the combat then —or now?

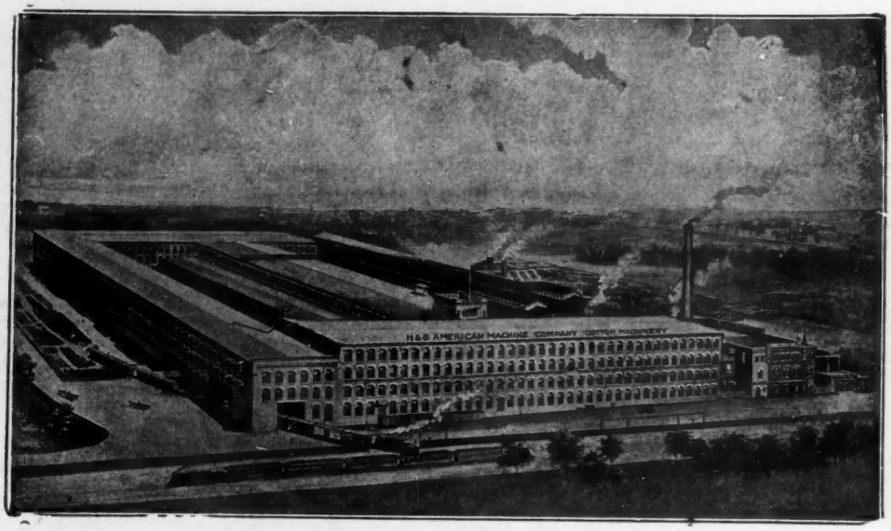
Viewed in retrospect was not it, after all, mostly a sporting event, signifying little? Yes; there was a stirring of certain passions that won't be calmed entirely by the returns. But these don't bear very potently on the current meaning of the returns—whatever they be.

What do the returns mean? Isn't that almost as big a question now as during the campaign? A campaign gives little forecast as to the bearing of its results on the future. Presidents have a way of turning out differently from what was expected of them. Who would have expected Coolidge to prove to be one of the really great Presidents of the country. Few expected it of Lincoln. Too much was expected of some; Taft, for example.

What arises after an election has more to do with shaping the quality of a President and the character of an administration than all that went before. It is the unexpected that tests the character of a public man; and the unexpected is almost the only thing which can be definitely expected.

When put to the test American public men, with all the faults of the average of their breed, have a way of rising to the occasion. Curiously, the worse the occasion the more nobly they rise to it. It's in the smaller, least stressful situations, that they are at their worst.

COTTON MACHINERY



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Diagnosing a Business

A New England merchant recited, at the recent convention of the U. S. Chamber of Commerce, an experience that may contain suggestions applicable to any business operation. He, a successful wholesaler, subjected his establishment to rigid diagnosis to find whether it was operating wholesomely. He began by asking himself: What are the obligations of this store and how can they be performed best?

He discovered that he was carrying many articles that did not come within his obligations. This was followed by the discovery that practically all of them were carried at a loss. He found that a large proportion of his purchases came from manufacturers so far away or comprised such small orders that those he bought from could not possibly profit from the sales. Studies of his own sales records yielded a similar finding—about one-third of all orders were from retailers who could be taken care of better elsewhere or were so small as to cost much more than could be made from them.

So he eliminated unnecessaries which he was under no obligation to carry. He stopped buying from manufacturers who were not naturally situated to command his trade. He eliminated all customers whose purchases merely increased his volume.

Subsequently, his volume of sales increased as did his profits.

State and Federal Law

The United States Supreme Court holds that evidence procured by tapping telephone wires may be considered in a case involving charge of violation of a Federal statute. The essence of the ruling is that wires and communications over them are not within the realms of privacy which under the Constitution may not be invaded except by specific authorization based on reasonable grounds. It is held by the court that Congress may make them so; but, until such is done, any evidence procured by Federal officers listening in on tapped wires is legal evidence.

This ruling is not as astonishing as the run of editorial comments on it would indicate. The court held several years ago that a Federal officer may stop and search one's automobile when on a public highway on suspicion only provided there are good grounds for the suspicion.

It seems to a lay mind that, in view of prior decisions in related cases, there is involved in the tapped wire ruling a more important principle than that bearing directly on the question of whether wired communications belong legally with letters and private papers. It appears that most of the States, including the one wherein the recent case arose, make wire tapping a criminal offense. Are the Federal Government and its officers not bound by State Laws that are constitutional as are the anti-wire tapping statutes?

The general tendency of Federal Court procedure in recent years indicates that even the Federal judiciary holds that no State law need be recognized by Federal law enforcement officers. State courts are not permitted to try Federal law enforcement officers charged even with murder. Invariably when these officers are accused under State laws the cases are moved summarily to the Federal courts and Federal prosecuting attorneys become defendants' counsel.

Some State court or Governor might render a great service by defying and causing to be fought out to a settlement this issue. There was a time when States didn't hesitate to defy Federal Government attempts to usurp power. One went so far as to defy the United States Supreme Court itself—which was too far. Any State Government would be justified in defying, up to that point, the Federal authorities in matters that embody something akin to the licensing of reckless men to violate important State laws under the cloak of enforcing certain non-vital Federal statutes.

What the Southern Mills are Doing

PEPPERELL Manufacturing Company, Opelika, Ala., is installing 300 40-inch Draper looms, opening equipment, 18 spinning frames and considerable miscellaneous equipment from the Lowell, Mass., plant; and 100 cards were purchased from the Manomet Mills to replace the cards already in use in the Opelika plant.

It is announced that a braid, trimmings and narrow fabrics mill to be known as the Alabama Braid Corporation, will be located at Gadsden, Ala. The company will manufacture Jacquard and plain ribbons, braids, upholstery and other trimmings.

It is announced that of the ten units comprising the Alabama Mills Company, Birmingham, Ala., the four units at Aliceville, Jasper, Haleyville and Russelville, Ala., will be in production early in November; Fayette and Winfield, Ala., about December first; and the remaining four, Clanton, Wetumpka, Greenville and Dadeville, Ala., will be ready during December and January.

It is reported that the Catherine plant of the Avondale Mills, Sylacauga, Ala., will build an extension to the present plant.

Pepperell Manufacturing Company, Lindale, Ga., is enlarging the cloth room to 75 x 100 feet. No new machinery will be installed.

The Acworth Mills, Acworth, Ga., will erect a modern school building. The school will be constructed according to specifiations of the State Board of Eduation. The classrooms will be so constructed as to be easily thrown together to form a large auditorium, which will be used as a community center for the mill village.

The McLin Textile Mills, Rome, Ga., have been purchased by The Primrose Tapestry Co., Philadelphia, Pa. New machinery will be installed in the Rome plant for the manufacture of tapestry, silk scarfs, draperies, table covers and couch covers.

It is announced that the Marietta Cotton Mills, Marietta, Ga., will again resume operations after being closed down for the past few months.

The Americus Rayon Mills, Americus, Ga., announce that part of the machinery to be installed in the mill has been received from Gloversville, N. Y.

Maginnis Cotton Mills, New Orleans, La., have plans by Emile Weil, Inc., architects, for a three-story brick and frame building.

It is announced that the Rountree Cotton Mills, Magnolia, Miss., will resume operations after being closed down for about two months.

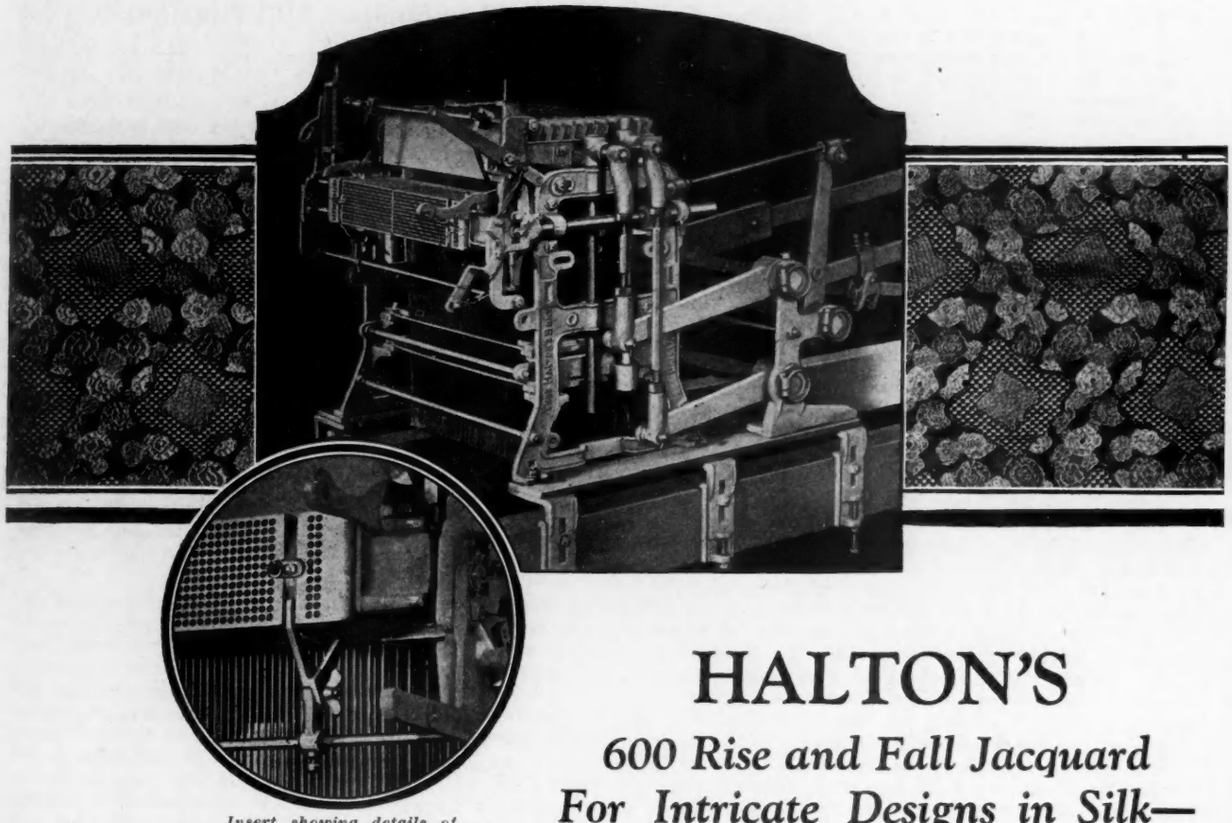
W. T. Love and S. A. Robinson have been appointed receivers of the Harden Manufacturing Company, Worth. N. C. For the past two years this mill has been operated by the Ranlo Manufacturing Company, of Gastonia, under the terms of a contract lease.

It is reported that the Sellers Manufacturing Co., Saxapahaw, N. C., will install 2,000 additional spindles in the plant.

The Roseland Cotton Mill, Lincolnton, N. C., which was recently purchased by the Rudisill Spinning Company, is now in full operation. The mill has been remodeled and the capacity of the plant has been doubled.

Installation of machinery at the Dixie Throwing Company, Greensboro, N. C., has been started.

Adams-Millis Corporation, High Point, N. C., have let



Insert showing details of stripper feature.

HALTON'S

600 Rise and Fall Jacquard For Intricate Designs in Silk—

THE 600 Rise and Fall, Double Grate Jacquard machine is especially designed for weaving the most delicate designs in silk materials. The improved card stripper and card roller, shown in the cut to the left, demonstrates one of the latest developments of Jacquards invented by Thomas Halton's Sons. Either the French Index or the Fine Index, Rise and Fall Jacquard is used for weaving in silk as shown above.

Every Halton Jacquard is manufactured to render superior performance and to allow intricacy of design. Wherever COTTON, WOOL, or SILK manufacturers desire the best in Jacquards, they turn to Thomas Halton's Sons. Past performance guarantees future Satisfaction.

Some of the Silk Mills where Halton Jacquards are giving satisfaction in performance and durability.

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• A HALTON JACQUARD FOR EVERY DESIGN AND PURPOSE •

THE Callaway mill interests, of LaGrange, Ga., have purchased the plants of the New England Southern Mills, at LaGrange and Hogansville, Ga. A new corporation, Calumet Cotton Mills, with Cason J. Callaway as president, has been formed to operate these mills. The plants involved are the Stark Mills Division and Hogansville Mill Division at Hogansville, and the LaGrange Division, at LaGrange. Ira B. Grimes will head the manufacturing organization, in which no change in personnel will be made, it is stated.

contract to William F. Lotz for a three-story reinforced concrete mill, 107 x 130 feet.

It has been announced that the La-France Textile Industries, Philadelphia, Pa., have purchased the Pendleton Manufacturing Co., Autun, S. C., manufacturers of paddings and laundry nettings.

The contract for the Hartsville Print and Dye Works, Hartsville, S. C., has been let to A. K. Adams Co., Atlanta, Ga. Roberts and Company, of Atlanta, Ga., are the engineers. The building will adjoin the one that has already been erected for the dyeing and bleaching.

The installing of machinery for the Piedmont Print Works, Taylors, S. C., has begun. All of the buildings are almost completed.

Approximately 9,000 new spindles are being installed in the Norris Cotton Mill Company, Cateechee, S. C. The new spindles will replace old equipment that is being removed.

It is reported that the Slater Mills, Marietta, S. C., wil erect 60 new houses in the mill village. Contract was let through J. E. Sirrine & Company, Greenville, S. C., to Townsend Lumber Co., Anderson, S. C.

Announcement has been made that the Riverside Mills, Enoree, S. C., have been purchased by the Chapman interests from Z. R. and M. D. Cates of Spartanburg, S. C.

Contract for erecting 70 new houses for operatives of the Joanna Mills, Goldville, S. C., has been awarded to the Fiske-Carter Construction Company.

It is reported that a 100-loom broad silk mill will be erected at Cleveland, Tenn., by Klein Brothers, New York City.

Contract for the new textile plant to be built at Dyersburg, Tenn., has been let to Gauger-Garsmo Construction Co., Memphis, Tenn.

It is reported that the Valley Cotton Mills, Harlingen, Texas, will be in operation about January 1st.

New Knitting Mill Directory.

"American Directory of the Knitting Trade in the United States and Canada," for the year 1928, has been compiled by Textile World and published by the Bragdon, Lord and Nagle Co., 334 Fourth Avenue, New York City. The 1928 edition is a complete revision of the previous year book and all the contents have been brought up-to-date. The manufacturers are grouped by states and alphabetically by towns under each state. In addition, the complete alphabetical index to all these manufacturers enables easy cross-references to the geographical section. There is a classified directory of knit goods manufacturers arranged according to their products. An additional section gives manufacturers of woven cotton underwear, also, the manufacturers of rayon underwear. The price of this book is $2.00 per copy.

National Announces a New Direct Yellow.

National Solantine Yellow F F Concentrated is a recent addition to the line of Solantine dyes manufactured by the National Aniline & Chemical Co., Inc., 40 Rector Street, New York. The company states that this yellow possesses excellent fastness to light and good fastness to washing for a direct color, and is suitable for dyeing all classes of cotton and rayon material that are satisfactorily dyed with direct colors. As this dye is not dischargeable, it is not suitable for dyeing cotton and rayon material that is to be subsequently discharged. It can be used in colored discharges, however, the company states.

New England Mill Situation.

October 18th, 1928.

THE twenty-five weeks strike in New Bedford mills was settled by a compromise of five per cent reduction instead of ten per cent which was posted in the mills on April 16th. The compromise was brought about through the mediation of a citizen's committee acting with the State Board of Arbitration, and backed by the unanimous support of the local newspapers who had been in favor of the strikers from the inception of the trouble. The proposition to compromise was accepted by manufacturers and rejected at first by the unions. Public opinion became so strong against the strikers that a vote was taken a week later and the unions reversed their action.

In the early stages of the effort to compromise the situation a proposition was made that in consideration of the acceptance of a five per cent reduction by the operatives the manufacturers would adopt a specialization plan in accordance with discussions that had gone on for some time. At the end the specialization plan was not bound up with the settlement. The mills are now operating less than an average of 40 per cent and the market demand has not been broad enough to induce the mills to start up more machinery at this time.

The manufacturers were able to reinstate many of the orders that were cancelled by their customers in consequence of non-deliveries during the twenty-five weeks idleness. Some mills were able to save 75 per cent of the business on the books and it was a curious circumstance that the price level was but little changed from the time the strike began until it ended. Many fancy lines of curtain materials, draperies, shirtings, and fine dress cottons were on the looms and the orders for these goods are being completed. Some of the plain goods orders that were unfilled were compromised by a revision of price wherever reductions had been made. Since the strike ended the New Bedford manufacturers have not pressed the market hard for business and several of them have declined to accept orders at price concessions due to the rise in cotton in recent weeks.

A report on the fine goods situation, circulated among the mills a couple of weeks after the strike ended, and preceding a meeting of fine goods manufacturers with the Cotton Textile Institute, showed that of the 110,000 fine goods looms in the country less than an average of 40 per cent capacity output was produced in the six months ending October 1st. It would seem as if this very drastic curtailment would be sufficient to affect the markets strongly in an upward direction. To date this has not been the case although it is commonly believed that before the end of the year a decided scarcity in many fine combed yarn fabrics will be disclosed.

The compromise wage reduction at New Bedford precipitated an instant demand in Fall River for a restoration of 5½ per cent. The Fall River unions had accepted a ten per cent reduction early in the spring and before notices of a reduction were posted at New Bedford. The Cotton Manufacturers Association in Fall River concluded that, inasmuch as the unions had accepted a reduction peaceably and the operatives had continued work during many attempts made from New Bedford to pull them out of the mills, that in justice to all the request for the 5½ per cent restoration should be granted. On October 8th the higher wage became effective in Fall River.

Fall River wages had hardly been settled before mills in eastern Connecticut posted notices of a five per cent wage reduction. Those mills and some of the Rhode Island mills did not follow the wage reduction begun in northern New England early in the year and are now merely placing themselves on a wage level with mills elsewhere.

One of the results of the New Bedford strike that is likely to last for some time and to have considerable effect in the textile labor field of New England was the absorption of the local textile unions in Fall River and New Bedford by the United Textile Workers of America, a branch of the

What Should You Pay for Lubrication?

It all Depends:—

1—How much protection to machine and equipment do you want? (all you can buy.)

2—How high are you willing to let expenses for repairs run? In other words, how often are you willing to bear the cost of idle machinery due to repairs and replacements brought about by ineffective lubrication? (Never, if you can help it.)

3—What degree of efficiency do you expect from your equipment? (The maximum, certainly.)

These are matters that have a direct bearing on the cost for lubrication.

We know lubricants and we know the problems that may be encountered in their application.

We know that varying degrees of efficiency may be expected from each kind and type of lubricant.

And we agree, that YOU, the buyer, must consider price in figuring costs. But we ask you, for your own good: Never consider price first but always last. Because only in the end—after the lubricant has had a chance to do its work—can you tell what lubrication costs.

That is the only way to judge—by results of lubrication.

Judged by results, TEXACO lubricants are the cheapest lubricants you can buy.

They will save power by their ability to reduce friction.

They will protect your equipment against wear, thus saving on the cost for repairs and replacements.

Because of the results obtainable—what they save—not what they cost—TEXACO LUBRICANTS are being used in more and more power plants, shops, mines and mills throughout the country, on every conceivable kind of equipment.

It will put you under no obligation whatever to have a well equipped TEXACO Engineer inspect your property. He will tell from experience which TEXACO Lubricant is best to use and tell you just what, where and how you can save on lubrication.

There is a TEXACO LUBRICANT for Every Purpose

THE TEXAS COMPANY

Texaco Petroleum Products

Dept. CN, 17 Battery Place, New York City

OFFICES IN PRINCIPAL CITIES

Another Southern Rayon Plant Announced

OFFICIAL announcement is made that the American Enka Company will erect a $10,000,000 rayon manufacturing plant at a point near Asheville, N. C., where a site of 2,100 acres has been purchased. Lockwood, Greene & Company, through the Charlotte office, are the engineers for the project. The American Enka Company is a subsidiary of the Enka Artificial Silk Company, of Arnheim, Holland.

national organization, the American Federation of Labor.

More demands are expected to be made upon mills outside of those indicated for a restoration of a part of the wage reductions made early in the year. The U. T. W. officers have already given notice that they propose to press demands upon northern New England mills but at this time nothing definite has been done.

The long talked of cotton mill merger in New England, fostered by Homer Loring and his associates, was announced in the second week of October. A corporation was formed under the Laws of Delaware to take over three converting houses in New York City that are reported to have done a business of $22,000,000 in cotton goods last year. Stock has been issued to the extent of 50,000 seven per cent preferred and common stock of 300,000 shares and offered to the public by Kidder, Peabody & Co. of New York and Boston. Of the common stock 250,000 shares of a value of $10 per share were purchased by the organizers of the new plan. It is intended to issue 150,000 shares of the preferred eventually.

It is hoped to take over some mills and some finishing plants to supply the united converting houses with merchandise if it may be procured from them at a price equal to, or lower, than similar merchandise is bringing in the open market. The mills or finishing plants that will be taken over have not been decided upon and the promoters of the new organization have stated that they will purchase in the North or South, wherever producing plants may be available under the most favorable terms.

This latter suggestion has confirmed a belief among many Fall River manufacturers that the new plan is not primarily intended to reconstruct the Fall River situation. That some Fall River mills will be taken over is not doubted and there is a possibility that two mills in New Bedford in which Kidder, Peabody & Co. interests are of a substantial character will be absorbed. The new consolidation is predicated upon a merchandising merger and not upon conditions in producing centers.

Among Mr. Loring's closest advisors are Louis K. Liggett, of the national drug syndicate, and Earle P. Charlton, one of the early organizers and the Vice-President of the F. W. Woolworth Co. It is surmised that it is proposed to organize a merchandising outlet consisting of retail stores to distribute the product of cotton mills but nothing definite along this line has been announced. The Woolworth Co. and the Liggett stores are large purchasers of many sorts of cotton goods now made in Fall River mills and in mills elsewhere.

Many other mergers are being talked of in New England and it is believed that announcements will be made in the near future of other plans to consolidate mills and selling agencies. An attempt was made a short time ago to consolidate four of the leading bedspread mills in New England but the proposition of the promoters was not considered favorably by any of the mill managers. It is also stated that plans are afoot to merge some of the New Bedford mills and to organize new merchandising methods.

One or two finishing plants are now working in close cooperation with cotton mills making definite grades of shirtings and other goods that can be sold direct to the cutting trade eliminating the profit and work of the converter. Efforts to extend this system are quite active. Resentment has been expressed by some of the converters but nothing is likely to stop the tendency to go direct to the trade with mill products wherever such a thing is possible.

It is stated that three manufacturers of fine combed goods of a staple character in Massachusetts and Rhode Island have so far perfected what was known as the specialization plan during the New Bedford strike that they are able to undersell other mills making similar goods. Engineers are at work in other mills in the district trying to put the new plan into effect. By a rearrangement of machinery and a reduction of operatives, the latter attend more machines doing the skilled work and receiving more pay while the mills supply unskilled workers for part of the work and thus bring about a reduction of costs.

Rhode Island and Connecticut mills have been reorganized more thoroughly than mills elsewhere in New England in the past year and are doing a relatively larger amount of the business available. The B. B. & R. Knight Mills have made successful efforts to sell substantial parts of their gray goods products in the finished state, both printed, dyed and mercerized.

The finishing plants have been receiving more orders in the past three weeks and those of them having facilities for printing are very busy and in some instances working overtime. Market reports indicate a larger printed goods season than a year ago and converters have recently been putting more goods into work, especially in the higher prices lines. Many of the plants are very active on rayon, celanese, or silk and cotton mixtures.

Much interest was shown here in the textile machinery display at Greenville, S. C. It is the belief of many New England manufacturers that the industry is again on the verge of a great change in equipment that will bring about much lower costs in mills that are financially strong enough to take advantage of new inventions and attachments that are destined to play a large part in reducing the cost of cotton mill production. Long draft spinning, condensed picking, and many changes pending in weaving all tend toward placing newly equipped mills in a strongly competitive position.

In an address delivered before the Cotton Textile Institute in New York, President Hines expressly favored consolidation as a means of correcting the situation in the cotton goods industry. Like many others he believes that the multiplicity of small units makes competition difficult, and most unprofitable, in periods of light demand. But there are many other manufacturers who are convinced that well managed, moderate sized units, supplemented by good merchandising connections, will weather competition from textile consolidations for many years to come. It is certain that New England manufacturers, as a whole, are not yet sold on the efficiency of textile consolidations.

Style Conference Held in New York.

Under the joint auspices of The Cotton-Textile Institute and the National Association of Manufacturers of Cotton Dresses, a style conference was held on the mezzanine floor of the Merchants Square Building, 40 Worth Street, New York City, on Oct. 9th.

One of the features of the conference was the display of new cotton fabrics made up into dresses and shown by models. These fabrics for the Spring season were shown by seven manufacturers whose lines include materials suitable for making apparel to sell at retail in the lower price ranges.

This style conference was the first affair of its kind to be held under the auspices of organizations representing both manufacturers and cutters-up. It was a sequel to the exhibit which was a feature of the annual meeting of the dress manufacturers in Chicago last May, and was arranged for the purpose of bringing the two groups of manufacturers together, in connection with opening of new lines of Spring fabrics.

The following members of The Cotton-Textile Institute participated in the conference: American Printing Co., through M. C. D. Borden & Sons, Inc.; Consolidated Textile Corporation, through Consolidated Selling Co., Inc.; B. B. & R. Knight Corporation, through Converse & Co.; Lorraine Manufacturing Co.; Manville Jenckes Co.; Pacific Mills and Pepperell Mfg. Co. Stockings worn by models were furnished by Durham Hosiery Mills.

The Horse Car

versus

The Electric

CAN you imagine any street car company in this day and age using the horse car in competition with the modern electric?

And yet,—in the Textile Field—there are mills depending on humidifying equipment installed way back in the "Gay Nineties" who try to compete on an equal basis with mills operating at lower costs and turning out superior goods through the use of modern (and, therefore, efficient) humidifying devices and apparatus.

Scores of mill owners have already found out that excessive production costs and inferior products are traceable largely to old and inefficient humidifying equipment. They found the remedy by consulting one of Amco's specialists. These "Air Doctors" are at your service.

THIS newly designed Amco Humidity Control automatically regulates and controls humidity in Textile and other mills without using wet or dry bulb actuated devices.

If you can't answer these questions you ought to send for an Amco "Air Doctor" at once.

1. How much can your production costs be lowered and your product improved by the installation of modern humidifying equipment?

2. What per cent will a modern humidifying system pay you on the investment?

3. What relative humidity is giving your competitors best results in weaving, spinning, carding, knitting, roving and combing departments?

Amco "Air Doctors" gladly answer such questions as these in a written report, *made without obligating you*, after a survey of conditions in your plant.

Why not get their diagnosis? It will cost you nothing and may easily result in changing red figures into black ones.

AMERICAN MOISTENING CO.

Humidifying Devices

Air Doctors Since 1888

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Boston, Mass. **Atlanta, Ga.**
Charlotte, N. C. **Greenville, S. C.**

COTTON COMMENT

By H. & B. Beer--

New Orleans, October 13th, 1928.

ONE month ago, when the market was much lower and when there was talk of the probability of the cotton crop being under-estimated, we were one of the few optimistic at that time, stating, in our monthly review of that date, September 15th: "For the first time since the fall of 1926, the bumper crop year, the cotton market appears to be in a position to warrant an accumulation of stocks of raw cotton by the spinner, a replenishing of stocks of cotton goods by the retail merchant, and the buying of contracts by the speculative inclined and by the conservative investor."

At that time, one month ago, it was stated that some large interests were apparently quietly buying very extensively of new crop cotton in the interior, particularly in Texas. As yet there is no abatement in the demand, daily sales continuing to exceed last year's business, with prospects of the demand continuing.

Compared with one month ago the market advanced $10 per bale, the high for the upward movement having been reached on October 8th as result of returns to the Government, as of October 1st, indicating a production of 446,000 bales less than indicated as of September 1st—13,993,000 bales versus 14,439,000.

This important reduction in the size of the prospective crop has made for a stronger statistical position, as noted by the following deductions:

American cotton— Bales	This season	Last season
World's carry-over, lint, August 1st....	5,078,000	7,012,000
Indicated crop, lint	13,993,000	12,955,000
Season's indicated supply, lint	19,071,000	19,967,000
Season's consumption, lint	(?)	14,896,000
Average price of middling for season at reporting Southern markets	(?)	19.72

While the price of cotton now is much higher than one month ago, the indicated crop is much smaller, consequently the staple remains in a comparatively strong position, especially since middling in New Orleans to-day is quoted at 18.64 versus last season's average for the belt of 19.72.

This is accounted for by the movement to market and ginnings being at their height just now, and because of the possibility of good weather prevailing. But it will not be long before half of the crop has been ginned, and the uncertainty of future weather has to be reckoned with, perhaps rain or frost when least expected.

Consumption returns are expected to make an unfavorable showing, at least for the first quarter of the season, which will likely be reflected in returns for September, as was the case in August. Last season consumption was large during the first half of the season, but it shrunk considerable during the last half of last season. This year it is likely to be small for the first half, and probably large for the second half of the season.

STATISTICS

Bales—	This season	Last season
In sight to date, marketed	4,053,000	4,439,000
World spinners' takings to date, American	2,641,000	2,815,000
World's visible supply of American	3,760,000	5,073,000
Of other kinds	1,528,000	1,220,000
Of all kinds	5,288,000	6,293,000

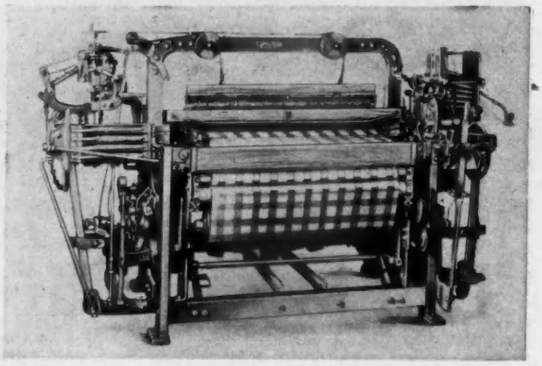
In other words, after the bulk of the crop has been ginned and marketed, consumption is likely to increase, perhaps to a considerable extent, which should make for a very bullish development later in the season, even though the indicated yield be reduced no further.

But there is the possibility of a further downward revision in the indicated crop in event of a general killing frost at an average date this year, or say by the first week in November for the northern portions of the belt, as the crop is late, and killing frost at an average date would probably have the same unfavorable effect this year as would an early killing frost in an early crop year.

The U. S. department of agriculture summary, issued at Austin, Texas, recently, stated in part: "As usual the first frost date is a vital factor in west, northwest and portions of the central-west. There is so much late cotton in these districts that freezing weather before early November would cause a material reduction in present prospects."

For the time being the weather, the outlook of which is rather favorable for the present, may have a temporary depressing influence on values, but such depressions, especially important recessions, should be taken advantage of to buy in the anticipation of probably higher, perhaps much higher prices ultimately.

New Cotton King Automatic Loom



THIS illustration shows the cam harness motion type of the new Cotton King automatic loom being manufactured by Crompton & Knowles Loom Works, Worcester, Mass. This loom was described on page 1302 of the October issue of COTTON. It embodies a number of new features in design and construction. This new line of looms was displayed at the Southern Textile Exposition last month for the first time.

Rayon Fashion Show Held in New York.

Rayon fabrics of fashion exemplified in distinguished original models by leading designers of both Europe and America, and in striking, decorative fabric displays, were uniquely and comprehensively shown at the Exposition of Woman's Arts and Industries at the Hotel Astor, New York City, from Oct. 1st to 6th.

Rayon Institute of America, Inc., selected with great care and breadth of appeal fabrics and garments most illustrative of the present-day advance of this newest of yarns as it is used on two continents in the modern fashion world. For proper displays of the multiple uses of rayon it was necessary for the rayon industry, acting through the Rayon institute, to reserve four separate display centers at the Woman's Exposition. The use of rayon and its artistic development is intrinsically associated with the modern development of fashions in the realm of women. Many prominent women designers are today working with rayon fabrics for women consumers both here and abroad. Hundreds of women are also employed in the industrial end of rayon manufacture. The rayon displays at the exposition were therefore thought to be among the outstanding illustrations of modern woman's genius in industrial and artistic fields.

Rayon Course Added at the Bradford Durfee Textile School.

Henry W. Nichols, principal of the Bradford Durfee Textile School, Fall River, Mass., has announced the opening of a thirteen-weeks course in rayon to be offered under the direction of Professor John W. Norman. The rayon course at the institute has been necessitated, it is said, because of the growing importance of this fiber in the yarn and fabric world; its widespread use throughout the country; and a constantly increasing need for intelligent and well trained chemists, engineers and textile experts in this field.

It is also announced that plans are under way for the organization of a rayon class at Lowell Textile Institute, Lowell, Mass., under the supervision of the chemistry department, of which Louis A. Olney is head.

There's extra service in Rockweave canvas products

They were originally designed for the special needs of the textile industry . . . the hardest service there is. From the start, there's been a big demand for them in other industries as well. As a result, Rockweave canvas baskets, trucks and hampers now form a complete line, built for every need.

They are made of materials which have proved the best for the particular service specified. Their covering, Triumph Duck, is made in our own mills. It is tougher, harder wearing. Frames are of specially tempered spring steel. Top rims are bound with chrome leather. Casters, handles, hinges, eyelets, shoes and truck boards are all of special design and selected materials. For light weight, and long wear, they are in a class by themselves. And, like all Rockweave products, our manufacturing facilities enable us to price them right in line with the market.

All standard sizes of baskets, trucks and hampers are carried in stock, ready for immediate shipment. Special sizes to meet your requirements will be made and shipped promptly, at reasonable prices. Our representative can supply full information, and take your order. Or you can write direct.

Rockweave Mills

CANVAS PRODUCTS DIVISION
DIVISION CALLAWAY MILLS

LaGrange, Georgia

Canadian Sales Representative
J. BURNS
51 Kensington Ave., S., Hamilton, Ontario

NOTES ABOUT MEN YOU KNOW OR KNOW ABOUT

GEORGE SHERRERD, Jr., has been made sales manager of Tolhurst Machine Works, Troy, N. Y., succeeding R. K. Cheney. Mr. Sherrerd was previously manager of the New York and New England territory of the company. He will now maintain headquarters in Troy in the general offices of the company.

Chas. F. Fleming has been appointed treasurer and manager of the Pioneer Braid Works, Laurens, S. C.

E. Morrison, who has been vice-president of the Fidelity Hosiery Mills, Newton, N. C., has been elected president of the company.

W. H. Leathers has resigned as master mechanic at the Middleburg plant of the Martel Mills, Batesburg, S. C., to accept a similar position with the Newberry Cotton Mills, Newberry, S. C.

D. K. Dunn has resigned as overseer of carding at the Montala Manufacturing Company, Montgomery, Ala., to become overseer of carding and spinning at the Greenville plant of the Alabama Mills Co., Greenville, Ala.

L. H. Phillips, for many years secretary of the Fidelity Hosiery Mills, Newton, N. C., has been elected vice-president.

Fred Guerrant has been elected treasurer and general manager of the Fidelity Hosiery Mills, Newton, N. C.

J. D. French, cotton grader for the Kendall Mills, who has been located in Boston, is to move to Newberry, S. C. P. N. Fants and R. W. Kirkland are expected to be associated with Mr. French as cotton buyers for the Kendall Mills.

James H. Porter, vice-president of the Bibb Manufacturing Company, Macon, Ga., who has been ill for many weeks, has returned to his home from Philadelphia, where he underwent two serious operations.

J. B. Wingood, of Winnsboro, S. C., has accepted the position of overseer of weaving and cloth room at the Aliceville plant of the Alabama Mills Company, Aliceville, Ala.

Walter Farnum Brown, for 25 years associated with the Victor Ring Traveler Company, Providence, R. I., died suddenly on October 6th, at his home in Lonsdale, R. I. Mr. Brown was well known in the southern textile industry, having been the first representative of his company to cover the southern territory. He was 55 years of age, and his death came suddenly while entertaining some friends in his home. Funeral services were held on Tuesday, October 9th, from his home at Lonsdale.

N. L. Mortensen has been appointed chief engineer for the Cutler-Hammer Manufacturing Company, Milwaukee, Wis. Mr. Mortensen has been connected with Cutler-Hammer for the past 21 years, the last five of which he was assistant to the chief engineer. T. E. Barnum, formerly chief engineer, has been appointed consulting engineer for the company.

R. E. McKee has become connected with the Link-Belt Company, and will represent the company's silent chain division in the Atlanta and Birmingham territories, with headquarters in the Brown-Marx Building, Birmingham, Ala. Mr. McKee is a graduate of the Georgia School of Technology, and was formerly connected with the J. M. Tull Rubber and Supply Company, Atlanta, Ga.

James A. Chapman, Jr., vice-president of the Inman Mills, Inman, S. C., will also be vice-president of the Enoree Mills, Enoree, S. C.

Albert N. Martin, who has been superintendent of the Everett Mills, Lawrence, Mass., has been appointed superintendent of the Russellville plant of the Alabama Mills Company, Russellville, Ala.

Thomas A. Marlowe, southern sales agent, L. Sonneborn Sons, Inc., textile products division, announces the appointment of V. L. Phillips as representative for North Carolina and Virginia.

E. J. Boswell, formerly overseer of carding and spinning at the White Hall Yarn Mill, White Hall, Ga., has resigned to accept the night superintendency of the Elberton Cotton Mill, Elberton, Ga.

Frederic Amory, official or director of several textile mills, including the Indian Head Mills of Alabama, died on October 5th.

J. A. Chapman, Sr., president of the Inman Mills, Inman, S. C., will hereafter also be president of the Enoree Mills, Enoree, S. C.

Clarkson V. Morton has been elected secretary of the Enoree Mills, Enoree, S. C.

Luther Brown, formerly of Greer, S. C., has become night overseer of weaving at the Mercury Mills, North Charlotte, N. C.

R. C. Veach has been promoted to night overseer of spinning and twisting at the Priscilla Manufacturing Company, Ranlo, N. C.

B. J. Tucker, Calhoun Falls, S. C., has accepted the position of master mechanic at the Middleburg plant of the Martel Mills, Batesburg, S. C.

J. W. Todd has resigned as general manager and treasurer of the Pioneer Braid Company, Laurens, S. C.

J. G. Brown has resigned as overseer of weaving at the Aragon plant of the Aragon-Baldwin Mills, Rock Hill, S. C.

J. B. Horton has resigned as overseer of carding at the Aragon plant of the Aragon-Baldwin Mills, Rock Hill, S. C.

A. C. Gregg, of Charlotte, has been appointed superintendent of the Belmont Hosiery Mills, Belmont, N. C.

A. B. Brown, who for some time has had charge of the carding at the Rodman-Heath Cotton Mills, Waxhaw, N. C., is now in charge of the spinning also.

J. J. Kinsey has resigned as overseer of carding at the Adams Duck Mills, Macon, Ga., and has accepted a similar position at the Atlantic Cotton Mills, Macon.

Camille Muller, formerly of the Swansea Print Works, Swansea, Mass., has been appointed manager of the Piedmont Print Works, Taylors, S. C.

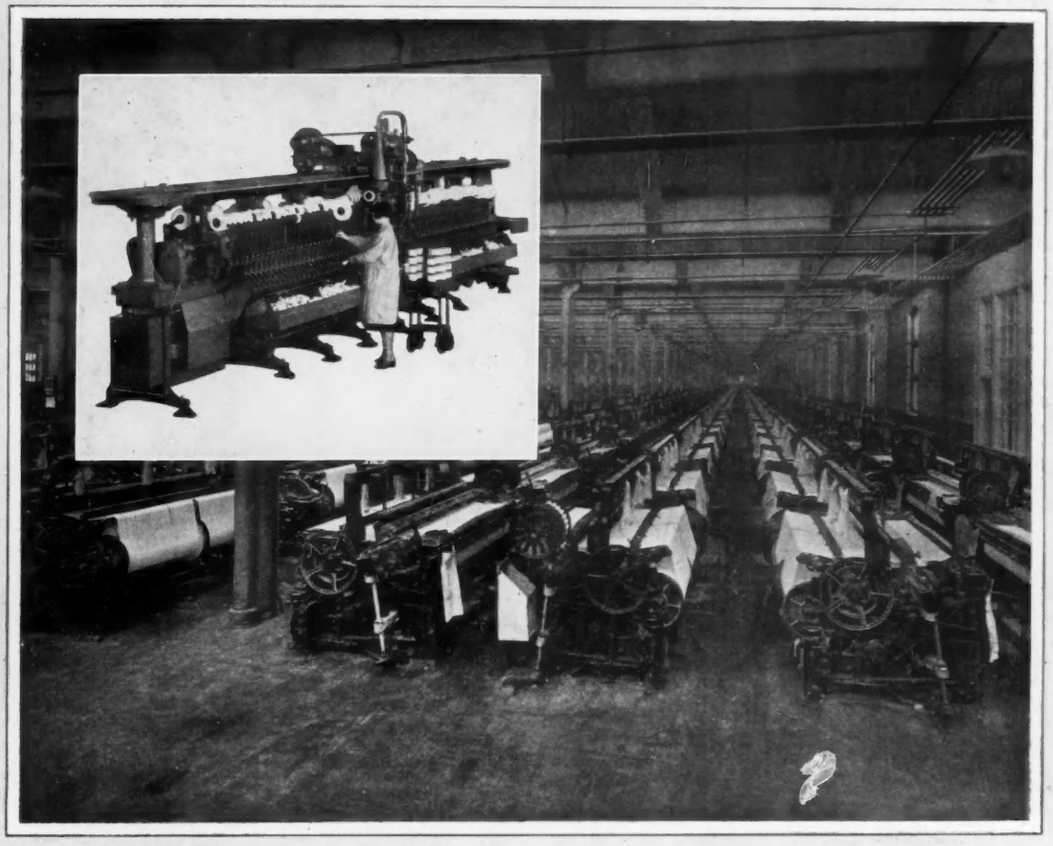
C. H. Hammond, formerly of Lando, S. C., is now overseer of carding at the Aragon plant of the Aragon-Baldwin Mills, Rock Hill, S. C.

IRA B. GRIMES is in charge of the Calumet Cotton Mills, formed to operate the New England Southern Mills plants at Hogansville and LaGrange, Ga., which have been acquired by the Callaway interests. Mr. Grimes will have supervision of the Stark Mills and duck mill at Hogansville, and the duck mill at LaGrange, in addition to his other duties with the Callaway mill organization. No immediate change in personnel at the local plants acquired is contemplated, it is announced.

An Addition to the Staff of the National Oil Products Co.

Dorothy Langdon Potter, A.B., M.A., has joined the silk research division laboratory of the National Oil Products Company, Harrison, N. J. Miss Potter was for several years with the U. S. Rubber Company research laboratory, Textile Division, and for the past five years was with the Swarzenbach Huber Company research silk laboratory.

"EVERY KNOT A WEAVER'S KNOT"



"GREATEST IMPROVEMENT IN TEN YEARS"

A PROMINENT LOOM AGENT RECENTLY REMARKED: "BARBER-COLMAN SPOOLERS HAVE DONE MORE TO IMPROVE WEAVING THAN ANYTHING ELSE WITHIN THE PAST TEN YEARS."

BARBER-COLMAN COMPANY

GENERAL OFFICES AND PLANT

ROCKFORD, ILL., U. S. A.

FRAMINGHAM, MASS. GREENVILLE, S. C.

Testing U S Better Bobbins at 7500 R. P. M.

This young lady is only one of the many inspectors in our factories who do nothing but test U S Better Bobbins for true running on customers' spindles at 7500 r.p.m. Skilled sensitive fingers eliminate the bobbins on which neither you, nor anyone else can spin good yarn.

Run of the lathe, untested and uninspected bobbins can always be bought for less money than U S prices, but ask yourself or ask your spinner how much you save? Good bobbins play a more important part in good yarn making than the average mill man will take the time to realize. Not so, however, with the best mills. That is the reason so many of them are U S equipped.

Investigate your bobbin situation and make out your next order to U S.

P. S. Warp Filling Wind Bobbins, and Automatic Loom Quills or regular Filling Bobbins for rayon, are specialties with U S.

U S BOBBIN & SHUTTLE CO.

PROVIDENCE, R. I.

GREENVILLE, S. C.

GREENVILLE, S. C. PHILADELPHIA, PA. HIGH POINT, N. C. ATLANTA, GA.

BUILDERS OF BETTER BOBBINS, SPOOLS, AND SHUTTLES

AN OLD TIMER SAYS

In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brothers along,
"Old-Timer" finds the sunshine of living

"AND HERE is your card room, Jim. How many frames to the operative? Have you put on the multiple system yet, like so many are doing?"

Has One Man To Lay Laps

"Well, yes and no, Old-Timer. We are operating more frames and more cards to the hand than we were, but we are not exactly on the multiple system. We believe that most of the variation in numbers is caused on the pickers, cards and drawing. Therefore, we do everything we can to get it through the drawing with a minimum amount of variation. For example, we have one man lay all the laps on the cards, and we put a lot of work into teaching him how to lay a lap on a card to keep the sliver as even as possible. As we only have one man instead of all the card hands laying laps, we feel sure we have made considerable improvement. . . Say, Old-Timer, can you lay a lap on a card and make the sliver not vary ten grains; that is, if you are making a 50-grain sliver, can you lay a lap and not cause the sliver to weigh 45 grains or 55 grains?"

"Say, what do you take me for? Don't you think I ever saw a card before?"

"Never mind, suppose instead of arguing about it, you just lay a lap on this card and we will weigh several yards of the sliver" . . .

(Old-Timer is not willing for the result of this test to be published, but advises the reader to go into the card room and make this test, that is, lay a lap down on a card himself where a lap is running out. Do your own weighing, and then send your result to COTTON for the information of other overseers and superintendents.)

"Well, confound it, I'll bet you a new hat that I can put up an end on drawing, anyway. . . . Say, Jim, don't you ever take up your waste? Now, let me give you a little tip: instead of letting that fool pull the waste out from under all the cards and leaving it there until he goes off to find a box to take it up in, make him get the box first, and when he takes the waste from under a card, put it in the box and go on to the next card. That will keep you from having such a mess. . . . What in the devil are you laughing at? Can't you see your floor looks like a new ground with the brush piled all over it?"

Inspecting The Card Waste

"Wait a minute, Old-Timer, and I will explain. Every month or two the overseer has the waste man pull the waste out onto the floor from all the cards, and then go after him to come inspect it. There he goes now down that back alley over there. You see, all he has to do is walk down each alley and in ten minutes he has inspected the waste from every card. If any are throwing out too much waste, he calls the grinder's attention to them, and also he notes carefully if there is a card not putting out enough waste—that really is more important than one which is throwing out too much."

"Well, I'll be darned. Pretty good system, Jim. Have you got that down on that record you were telling me about?"

"You bet we have. I can tell you the exact date when that overseer inspected his cards for waste the last time. We also inspect the top strips, too."

"How's that? You can't lay them out on the floor and tell anything about them, can you? I suppose you weigh them from each card and keep a record on each."

"No, Old-Timer, we just take the roller off—that is, the roller the top strips wind around—and let the strips pile down onto the doffer casing. After the cards run a few minutes you can walk down the alley and it is no trouble to see just what each card is doing."

"That's not bad, Jim, but what is that grinder we just passed doing with all those trumpets?"

"We have two installations of cards, Old-Timer, and we noticed the sliver from the old cards broke back on the drawing more

We regret that we are not able to present in this issue "Old-Timer's" comments on the Textile Show in Greenville. He was very much in attendance, but found when he started to report what he and Jim saw that there was neither the time nor the space for it.

However, you'll find the accompanying continuation of his visit with Jim very interesting. In this issue Jim sort of puts one over on "Old-Timer," and next month they will continue their trip.

And, as for the Textile Show, undoubtedly "Old-Timer" will show that he has been there in some of the things he tells Jim in the next few issues.

The Editor.

LISTEN IN

on this business conference!

Leaders in many fields of industry and trade will meet with the editors and publishers of The Associated Business Papers, Inc., November 15 and 16 at the Roosevelt Hotel, New York, to discuss trends in business and cooperative trade development.

If you cannot drop in for these sessions, as we cordially invite you to, you can—by tuning in your radio—hear Mr. William Butterworth, President of the Chamber of Commerce of the U. S., speak on "Business Cooperation as a Public Asset." The National Broadcasting Company, recognizing the importance of the conference to business, will broadcast this key address over the stations named below.

The editors of this publication, which is a member of The Associated Business Papers, Inc., believe that you will want to be sure to hear at least Mr. Butterworth's contribution to this imporatnt conference.

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than that did which came from the old cards."

"Go on, now, how did you find that out?"

Suggestions From Operatives

"Well, to be plain with you, that drawing hand over there has been here since the mill started, and a few weeks ago the overseer wanted him to run this set of drawing over here because that drawing hand was not keeping up, but he explained to the overseer that the drawing from the old cards would break back more than the drawing he was running, because his all came from the new cards. You can just look at the drawing and tell the difference, Old-Timer. You can see the sliver from the old cards is bigger; it just looks heavier, but it is not, it weighs the same."

"Yes, but you weren't smart enough to see it until that drawing hand told you about it."

"I'll admit that, and for your information I will add that every overseer we have encourages the help to talk to them about the work. We are not egotistical enough to think we know it all, and when an operative has anything to say we listen to him and show him that we are interested."

"Good, Jim, and I can relate an experience I had on looms which shows it doesn't pay to have a chip on your shoulder about such things. I helped to install the second order of Draper looms which came South, more than 30 years ago. Well, after the looms were installed and the erectors were ready to leave, I was left there as a sort of trouble man. That was when we had right and left hand batteries and the spinning rooms didn't make as good filling as they do now. The overseer noticed that most of the loom stoppage was caused by a loom knocking out two bobbins and stopping. He instructed me to see if I could find a way to set the loom or change it in any way, so it would not stop when it threw out two bobbins.

"In watching the looms for several days I found one with a piece of the filling motion broken off, and it would knock out the whole darn battery of quills and run right on. The piece was called in the catalog, a 'filling fork slide cam drop.' Some long name all right, but it was the little piece which pushed the lever off when the filling fork caught in the snake head. The present looms have a similar piece but it works differently.

Weaver Shows The Way

"I told the overseer I could fix the looms so they would run on when they knocked out quills by breaking the tail off of this piece or taking the piece off entirely. But he said, 'No,' that he didn't want to do that, so I continued my experimenting. I was working on the looms of a weaver named Peterson, and he came up to me and said, 'What are you trying to do?' I explained to him just what I was working at. He went on about his work, but came back to me in a few minutes and said, 'I'll show you how to do that if you won't tell the overseer.' Then I told him that the overseer was the man who wanted to know, and for goodness sake to show me quick because I had been working about two weeks trying to find it out. Most weavers wore aprons then, because overalls were not so cheap. In fact, I don't remember seeing any of the fixers with overalls, they too wore aprons. Peterson ran his hand down into his apron pocket and pulled out a handful of small pieces of leather, and, selecting one piece, he raised up the 'filling fork slide cam drop,' and merely slipped the piece of leather under it. Then he put his finger on the filling fork and made it knock out two bobbins, and the loom didn't stop, because the piece of leather held the 'drop' up and prevented it from pushing the lever off.

"The overseer put them on all the looms at once, and although it did cause some seconds by making more thin places, still it boosted the production so much that they continued to use the little pieces of leather for several years until they threw out the old A Models to install the new E Model Drapers. The point I wish to bring out, Jim, is that if I had been too big-headed to let Peterson talk to me—because I was supposed to be a fixer, while he was only a weaver—it probably would have been a long time before we would have found out how to do it.

"This same reasoning applies to the things we are up against today, Jim. I merely told you of an experience which happened twenty years ago to bring out my point. In the modern business world, and for us that means the textile world, the dawn of each new day presents a different problem—new competition—and to meet these new things you must be *prepared*. . . . "

[Do you ever write "Old-Timer" and tell him what you think of his visits with Jim? If not, he would appreciate having your reaction to these little conversations. Why not drop him a line now, in care of COTTON, not for publication, but to let him know you are following him, and giving him an idea of how you like his "stuff." You probably may never meet him personally, and a line from you would give him a lot of encouragement.—The Editor.]

National Gum and Mica Company Re-organizes.

The National Gum and Mica Company, New York City, has acquired some other properties and will hereafter be known as the National Adhesive Corp. The address remains at 820 Greenwich Street, New York City. Mr. Alexander is president. J. M. Patterson of Columbus, Ga., has been appointed as representative in the Georgia territory and L. W. Buck remains as the manager of the Carolina territory with headquarters in Charlotte.

"Material Handling Systems."

"Material Handling Systems" is the title of a very interesting catalog issued by the Cleveland Crane and Engineering Company, Wickliffe, Ohio. This catalog is profusely illustrated with pictures showing the use of the Tramrail system in various manufacturing processes and its adaptability to a variety of needs. Complete specifications are given for equipment either with the electric hoist or hand hoist.

Kaumagraph Holds Sales Convention.

The annual sales convention of the Kaumagraph Company, manufacturers of trade mark transfers and lithography, was held in New York City recently. It was attended by the entire Kaumagraph sales force, including branch office representatives from all over the country. The specific purposes of this year's convention were two-fold. First, the sales force was given an opportunity to inspect Kaumagraph's new plant in the Graphic Arts Center, New York; second, to become familiar with a new extension in the scope of Kaumagraph's services. Some time ago Kaumagraph added to its extensive transfer business a completely equipped lithographic plant, extending its services to the lithographing advertising display, cut-outs, folders, etc.

THE program committee for the next meeting of the Texas association consists of:

H. G. Edmiston, Denison, Texas, chairman;
J. B. Bagley, College Station;
E. W. Camp, Lubbock;
Herbert Jones, Post; and
Claude Mast, Itasca.

President Clarke urges anyone desiring to submit a question for discussion at the next meeting to communicate with Mr. Edmiston or any committee member.

Recent Improvements in Calender Control

A Study Showing the Progress Made During Recent Years in Various Features of Plain, Chase and Schreiner Calendering

By James A. Campbell, Production Manager
ROCKLAND FINISHING COMPANY, GARNERSVILLE, N. Y.

THIS paper is one of three presented at the technical session of the A. S. M. E. Textile Division meeting at Greenville on October 17th, where James W. Cox, Jr., as chairman, presided. Other speakers included Walter W. Gayle, J. E. Sirrine, Alex Dow, president of the Society, and others.

In this paper Mr. Campbell presents succinctly what progress has been accomplished in various types of calendering during the past eighteen years, and offers some interesting predictions as to future developments.

The presentation of this report at the Greenville meeting resulted in some valuable discussion on the part of the engineers present.

RADICAL advances in operating textile finishing plants during the past few years have made it possible to produce a better product and to realize economies in the processing of goods. The outstanding contributing factors in these advances, i.e., improvement of quality and more economical operation, undoubtedly, has been almost entirely made by scientific studies to obtain facts, as very few real facts were generally known in the trade.

The so-called "good results" of the past are not sufficient for the operation of any modern textile plant, which expects to operate at a profit. Economic conditions require that advantage be taken of every opportunity to continually improve on the present methods, as well as those of the past.

Successful plants of today are employing new management methods, which develop initiative in the individual departments. They also continually compare their operations with scientifically possible standards. Specifically, the improvements usually are best handled by separating any problem into its elements. These elements are analyzed for their limitations and interrelations when functioning as a working unit.

As a larger proportion of all kinds of cotton materials are calendered today than in the past, calendering, in its various forms, has become a more important process than ever before, in the finishing of cotton goods, and has come in for considerable study, where before it was very much neglected and done in a more or less hit or miss fashion, depending upon the ideas of the man in charge of the plant.

The purpose of this paper is, therefore, to compare the principles, as well as the design of the machines used, the methods of operation and amount of production at the present time, to those in 1910, in order to show the tremendous advances that have been made.

The outstanding improvements in calendering have been mostly in actual machine operation, and next in improving the design, strength and weight, and methods of driving the machines. There has been, however, no change in the underlying principles of the machines themselves.

From Table 1, a general comparison of the fundamental factors in typical calenders of 1910 and 1928 can be made.

Referring to this table, it can be seen that:—

1. The fundamental principles of the machines are the same.
2. Belt and clutch drive has been replaced by direct connected motor drive.
3. The average increase in the number of rolls used is two. Modern five roll heavy calenders, with roller bearings, usually have a filled roll on the top and bottom. The latest development is to use six rolls having the top and bottom rolls of chilled iron. The latter rolls will last for years, and the same journals are always in the roller bearings. The reverse is the case when filled rolls are used, since they rquire frequent changing, which necessitates equipping all filled rolls in use, or spare, with hardened steel sleeves, so that they are interchangeable.
4. The increase in diameter of the composition rolls is from two to eight inches.
5. The increase in diameter of the rolls is from three to four inches.
6. The width of the face of the rolls employed has jumped from about 40" to 120", a majority being about 50".
7. Roller bearings are tending to replace plain bearings.
8. Composition pinions are generally used in place of cast iron pinions.
9. In the most progressive plants, direct connected atomizers have replaced the sprinklers, eliminating a separate operation.
10. Three rolls Mycock expanders are being more and more favored over the barrel type.
11. The tendency is to raise the rolls by motors instead of the old hand wheel mechanism. Hydraulic pumps operated by hand are also used.
12. Plants operating under the most advanced methods are driving the hydraulic pumps by direct connection to the driving shaft.

As the basis of the best operation of any calender is derived from careful time studies, the progressive finishing plant, therefore, has to make numerous checks of all the elements in calendering, so that all unnecessary operations are eliminated and the machine will be handled in the best possible manner to secure the maximum production with the lowest cost.

TABLE NO. 1

GENERAL COMPARISON OF TYPICAL CALENDARS OF 1910 AND 1928

	1910	1928
1. Principles of machine itself	Same	Same
2. Method of drive	Belt & Clutch	Motor
3. Number of rolls	3 to 4	5 to 6
4. Diameter of Composition rolls	18"	20" to 26"
5. Diameter of Iron rolls	9" to 12"	12" to 16"
6. Width of face of rolls	40"	50" to 120"
7. Bearings	Plain	Roller
8. Pinions	Cast Iron	Composition
9. Dampening	Sprinkler (Separate operation)	Atomizer attached to calender
10. Expanders	Barrel	3 Roll Mycock
11. Roll Raising	Hand Wheels	Motors
12. Hydraulic Pumps	Belted	Direct connected

TABLE NO. 2

TABLE OF CALENDAR OPERATIONS

Calendars	Yards per minute per machine	Minutes per roll of 800 yds.	Minutes per roll of 1,000 yds.	Standard service time in minutes	Total Standard time per roll 800 yards
Plain	100	8	10.00	3.04	11.04
Hydraulic	107	7.47	9.34	2.73	10.20
Chase	127	6.30	7.87	3.91	10.21
Schreiner	25	32.00	40.00	2.36	34.36

TABLE NO. 3

GENERAL COMPARATIVE DATA, 1910-1928

Types of Calender used	Types of Materials Calendered	Speeds in yards per minute: Actual 1910 Average	Actual 1928 High	Actual 1928 Low	Actual 1928 Average	Difference between 1910 & 1928 Aver. Actual	Difference between 1910 & 1928 Aver. Per cent.	Division of operating time in per cent. 1910 Running	1910 Service	1928 Running	1928 Service	Production in yards per hour 1910 Actual	Production in yards per hour 1928 Actual	Per cent. Increase
Plain	Shirtings & Dress Goods	60	110	110	110	50	83.3	50	50	85	15	1800	5280	193
Plain	Heavy Linings	70	180	160	170	100	142.8	50	50	70	30	2100	7140	240
Chase	Shirtings & Dress Goods	70	135	120	127	57	81.4	50	50	80	20	2100	6096	190
Hydraulic	Dress Goods	70	112	100	106	36	51.4	50	50	80	20	2100	5385	156
Hydraulic	Sateens	70	112	100	106	36	51.4	50	50	80	20	2100	5385	156
Schreiner	Dress Goods	18	46	23	25	7	38.8	78	22	90	10	540	1350	150

Accurate time studies have brought out, of late, the following facts which were only more or less recognized a number of years ago.

1. Calenders which are operated on one side only, require only one operator. On machines where the fed is on one side and the batcher on the other, part time of a helper is required. Large calenders should be installed adjacent to each other, so that one helper can take care of the extra work on two machines. This gives a personnel of one and a half men per machine. When only one calender is operating, the helper should receive the same rate as the operator, but when two machines are running, the helper should receive half the earnings of each calender operator. Should a heavy calender be located at a distance, the spare time of the operator can be used to run another machine, such as a sprinkler, paster, or button breaker.
2. The efficiency of the calender operators can be increased greatly if adequate service is provided by the truckers in the department. The truckers should receive a bonus, based on the average hourly earnings of the calender operators.
3. The supply of the rolls of cloth should be taken care of so that the operator does not need to leave his machine. Many yards are lost per day, through the operator having to move from his machine to get new rolls, or wheel away the completed roll.
4. The size of the rolls of cloth must be standardized for different fabric weights.
5. It is important to have shell centers of suitable size and weight, and these must pass freely into the shells, so that no time is lost in changing rolls of cloth.
6. Accurate measuring drums should be installed on the machines with clear figured counters connected to the drums. The counters should be in the line of vision of the operator, and this can easily be arranged by the use of sprockets and chain drives. The gears should be such that the counters directly indicate yardage.
7. Forms for recording the yardage, lot, style, etc., must be designed so that the clerical duties of the operator are reduced to a minimum. The information must be complete. Then accurate records can be made for payment and for cost accumulation. The importance of correctly designed records will be clearly shown by the following. In one instance, it required 1.04 minutes for the operator to record the information required on the job card; by rearrangement of this card or (form), the time of recording was reduced to 0.30 minutes per roll. This change alone added 36 minutes per day to the running time.
8. Holders are necessary to hold the operator's card. These can be installed on the frame of the machine.
9. Calendering operations are satisfactorily compensated by piece rate payment, the operatives being paid a predetermined rate per 1000 yards of goods calendered.
10. The installation of piece rates either on straight production or on differential rate, based on increased production, has proven an effective method for increasing the output. It should be emphasized, however, that the standard upon which such piece rate payments are based, must not be determined in the old fashioned hit and miss manner, but developed scientifically.
11. With judicious rates of payment, the quality of the product is assured.
12. The service time varies slightly. The rates of payment for this time should be computed from the basic hourly rate: As this rate is lower than the piece rate of an efficient worker, there is an incentive to reduce the service time. After the service time is reduced to an apparent minimum,time studies should be made on the complete operation, and standards set for the production of the machine. Table 2 shows typical service, as well as running time per roll.

Table 3 gives a few typical cases which show how scientific study, development of the machine itself, and definite constant control of operating calenders:—

1. Reduces the service time.
2. Increases the running time.
3. Increases the yards produced per unit of running time, with consequent reduction in the number of machines necessary to turn out a definite amount of work.

A summary of all the facts outlined, shows that:—

1. Calendering is a scientific process, not an "art."
2. There has been no change in the fundamental principles of the machines.
3. There has been a definite advance in the actual design of the machines.
4. Most machinery was run on beliefs and not facts.
5. Considerable machinery is now being run on facts and not beliefs.
6. The tendency is to substitute continuous for intermittent processing.
7. It is better to replace human guesses, or judgment, by chemical, physical and mechanical control.
8. With scientific control, definite schedules can be maintained more closely.
9. With scientific control, the earnings of the operatives have been increased.
10. With scientific control,the cost per yard has been reduced.

It is the opinion of the writer, therefore, that:—

I. There will probably be no radical changes in the underlying principles on which the machines operate.
II. There will be a more geenral knowledge of the facts of calendering.
III. Operation will be based more and more upon scientific facts and definite control of operation.
IV. Quantity and quality will increase through better control of: (a) Temperature; (b) Pressure; (c) Conditions in which the goods arrive at the calender; (d) Better methods of handling; (e) Further experiments should be carried on to run two rolls of cloth at one time on chase calenders; and (f) More consideration should be given to mechanical handling of cloth rolls.

Day and Night Schedule on Torrington Full-Fashioned Needles.

The Torrington Company, Torrington, Conn., announce that since the introduction of the Torrington Full-Fashioned needle at the Knitting Arts Exhibition in Philadelphia last April, the demand for these needles has grown to such an extent that it has been necessary for the plant to operate on a day and night schedule to fill orders.

Joseph T. Ryerson & Sons Acquire New Plant.

Joseph T. Ryerson & Son, Inc., Boston, Mass., have acquired the plant, merchandise and good will of the E. P. Sanderson Company, Cambridge, Mass. Both the Ryerson and Sanderson companies have specialized in the manufacture of products of iron and steel, such as, steel bars, shafting, angles, steel sheets, etc.

Lubrication Maintenance.

"Lubrication Maintenance" is the title of a pamplet published by the Alemite Manufacturing Corporation, Chicago, Ill. In this pamphlet it is pointed out that the proper lubrication of bearings and oil holes with the correct kind and amount of oil will do much to increase factory production and to lower production costs by reducing repair bills.

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HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all varieties of Mill Subjects

We invite our readers to make use of this department for the discussion of any and all problems arising in the mill or the finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

Wants Method for Polishing Wet Twister Rings.

EDITOR COTTON:

We shall appreciate it if some of the readers of "How OTHER MEN MANAGE" will discuss the best ways to polish 4-inch steel rings on wet twisters, outlining the product to use in polishing them. We would also like to have some discussion as to whether pitted rings have any effect on the running of the work? Also, what should be done with the rings in order to keep them from getting rusty when they are not being used regularly? All of our twisters are wet twisters.

CONTRIBUTOR NO. 4047.

The Multiple System in Spinning.

EDITOR COTTON:

Personally, I do not believe that the multiple system in the spinning room will be the success that it is expected to be. I think that it requires almost as much skill to do the cleaning on the frames as it does to set in the roving and piece up the ends.

I am sure that there will be some who will say that even though this is the case, it will be best to use special hands for cleaning. Theoretically, it looks as if it would, but I don't believe I will meet with a great deal of opposition from practical men in my viewpoint.

Regardless of the amount of skill and experience the operator has had in cleaning, some of the ends will be broken. This can not be avoided any more than the doffer can keep from breaking some ends when he doffs the frame. It used to be an almost universal practice to have some one piece up the ends behind the doffers; now the doffers piece up their own ends and do not break down so many. If we are to have the operative who does the cleaning piece up the ends that are broken in cleaning, it will require the same skill for cleaning as for spinning. If she does not have to piece up the ends she breaks down, she will be careless and not as particular as she should be. This will cause friction between the spinner and the cleaner.

Most of us have had experience with the hands who work on the night line coming in early to do their cleaning. There has been a lot of trouble caused by the night hand breaking down ends and not piecing them up. The remedy for this is to make them piece up all the ends they break or wait until the other shift has gone before they start to do their cleaning.

Even though we get our jobs in the best condition possible, there are times when some trouble will come up over which we have no control. I have gone to a spinner and asked how the work was running, and she would say that the ends were running good, but the roving was running out so fast that she could hardly get her cleaning done. When a spinner is doing only the piecing and creeling of roving she will have all she can do, where the multiple system is in use, on a normal day. On days when the roving is running out bad it will be necessary for her to have help. In a mill where electric drive is used, there will be days when the current will go off several times. This will cause the frames to be stopped in positions that will cause a number of ends to be broken when the frames are started. This will throw extra work on the spinner.

We have some days when the work will run bad in spite of all we can do. On the days when the work is running below normal, extra work will be thrown on the spinner and there is no way for her to shift her load. On a machine that will stop when a thread breaks it means a loss of production until the operative can get it started again, but on a spinning frame it means more work, because when a spinner gets behind the frame does not wait for her to catch up; it doubles and trebles her work. It also makes waste that must be carried back to the opening room and the cost of the original production in the card room is lost. There will be rolls ruined and gouts made on the yarn on account of the lap sticks stopping and the fly catching on the yarn.

This letter may bring up the question, why wouldn't this be just as bad where the spinner does her own cleaning? Spinners do their cleaning in their spare time and all well managed mills see that they do this cleaning in the proper way. A spinner is taught to keep her ends up first and then to do her cleaning. If they have a leather roll or lap roll stopped they are required to start them before the roll is ruined. The more sides a spinner is running the more unlikely she is to see a stopped roll and the further she will have to walk to start it.

A spinner who does her own cleaning knows the advantages of keeping her sides clean and as a rule will give very little trouble about cleaning. Where a spinner doesn't do her cleaning as she should, take some of her sides and give them to one who can keep them up. In this way you can locate your weak spinners before any bad work is made. Where a spinner is only piecing up the ends she will make a lot of bad work before it is learned that she is weak. A hand that has only the cleaning to do will slight her work and get by with just as little as she can.

I know of a mill that has changed over to the multiple system and claims great things for it. They have made a great improvement, but I don't believe that the dividing of the duties was responsible for it. I believe that they could have gotten just as good, or better results, by not changing the spinners, but making the improvements in the work.

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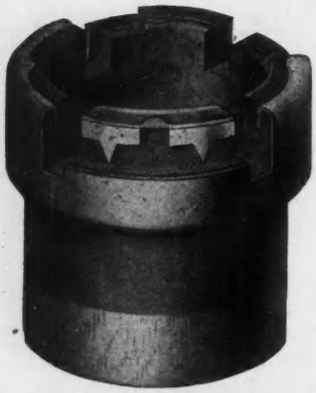

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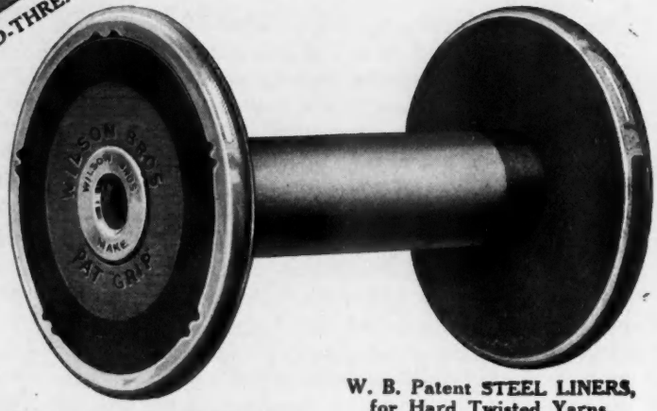

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There are cases where the superintendent and overseers have trouble getting the proper cooperation from the management they should have to put the job in first-class condition. By saying that they want to install the multiple system, and in order to do so, the machinery must be put in first-class condition throughout the mill, they are able to get the management to do their part and are able to run the rooms with less help.

We will find some mills where the machinery is in first-class shape and the work runs good. The overseer will only allow a spinner to run only so many sides, then when she gets her work caught up she can sit down and watch them run. The result is that she is idle about one-third of the time. The pay is good enough to keep the spinner satisfied and there is usually plenty of help around a job of this kind.

Everything is running fine when someone tells the superintendent the wonderful results someone else is having with the multiple system. The superintendent and overseer get together and put two spinners to piecing up and creeling on work which four spinners were doing, by paying them a little more than they were getting. The hand that does the cleaning on on both the jobs gets about the same amount of money she was getting and if she doesn't like it she can quit.

The glad tidings are then spread as to what wonders the multiple system is doing, and the only thing that they have done is put their hands to work. No doubt they had less trouble getting the 40 sides run by giving two spinners 20 sides each to creel and piece up on and letting one hand clean them than they would if they had tried to give three spinners 13 1/3 sides each and paid them for running 12 sides. They would have looked upon this as a direct cut and would have wanted their pay based on the number of sides they run. If it had been possible to explain to them that it was necessary to reduce the cost per pound and get them to run 13 1/3 sides and receive pay for running 12 sides, it would have been better for both the spinners and the mill.

I am glad to see any movement whereby the cost per pound can be reduced and the operatives' wages increased. Much along this line has been done for doffers during the past few years, but scarcely anything has been done for the spinners. Spinners today are running practically the same number of sides at the same roller speeds they did fifteen years ago. Doffers are doffing almost double, in some cases more than double, the number of frames they did fifteen years ago. This has been brought about by getting more yarn on the bobbin and by changing the system of doffing. The old rule was to get just as many doffers together as you possibly could. When I was doffing we had one man who was known as head doffer, whose duties were to pull down the traverse and get the frame ready for doffing. Next was the traverse winder, whose duty was to wind the traverse. Four boys doffed one frame, each taking half of one side; four boys pieced up behind the doffers; and one boy kept the boxes emptied. Today four doffers do the same work on these frames, winding the traverses, piecing up the ends and emptying their boxes. Today I am sure that no mill would want to go back to the old group system of doffing.

Any mill that tries to get their help to run more work and at the same time get the work where it will run better so that the hand will not have more work to do, is taking a forward step, whether this is done by giving the hand more frames to run or increasing the production of the frames. I think that the best method is to increase the pounds per frame if the spindles and gauge of the frame will stand it. After all this is something that each mill will have to work out in the way best suited to local conditions.

C. R. J. (S. C.)

Remedies for Rust on Rings and Rails.

EDITOR COTTON:

In a recent issue "CONTRIBUTOR No. 4038" submitted a question with reference to ring rails, rings, etc., rusting, and the causes of a fine powder forming on the travelers in the spinning room, especially near humidifiers. He wanted to know if there was anything which could be put into the humidifier tank to precipitate this scale.

No such condition as is described by your contributor has ever happened in my personal experience. If I were confronted with the condition which he describes, I should recommend investigating on the following lines:

Collect a sufficient quantity of the deposit or scale which forms on the travelers to have it subjected to a careful qualitative chemical analysis. The water, not in the humidifier tank itself, but as supplied initially to the tank, should also be carefully analyzed for chemical impurities and the two analysis compared. Should the same constituents appear in both analysis, it should be cured not by treatment in the humidifier tank, but by treatment of the water prior to being supplied to the tank.

Presence of the same chemical impurities in the scale and in the tank might easily be due to some unusual impurity arising from some source other than the water, and in such a case the humidifiers might collect this impurity from the air passing through them, in which case its return to the tank with condensation would account for its presence in the tank.

I have heard of one case in which at certain periods of the year a mill being very short of water from its usual source of supply made use of water from a well which was found to be brackish and perceptibly saline. In this particular case at these seasons of the year, the ring travelers showed an inclination to become rusty and caused the work to run poorly. It might be that the roughness of the traveler surfaces from some such cause as this would bring about the removal of wax and lint from the yarn passing through the travelers and cause the accumulation of which your correspondent speaks, in which case analysis of the dust might be misleading.

I can hardly believe that the accumulation itself can be due to the precipitation of saline or mineral impurities in the water, because such materials when in solution represent such minute quantities of material that their accumulation could hardly be visible to the naked eye. By all means look closely for impurities in the water supply. If impurities are found, see that the water is properly purified by filtration and chemical treatment if necessary, before this water is permitted to enter the humidifier supply.

CONTRIBUTOR No. 4045.

EDITOR COTTON:

In reply to the question of "CONTRIBUTOR No. 4038" in the August issue, I will try to give him a reason and a remady for the scale and rust on his flyers, rings and

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ring rails,

Many of the mills in the South have hard water; possibly the lime in the water is causing the scale on the rings. Possibly by heating the water in the humidifier tank and using soda-ash in the tank this scale would be overcome. The best thing to do is to send a sample of the water to the state chemist to be analyzed. There would be very little cost, if any, for this. He could then make recommendation as to the best way to soften the water and overcome the impurities.

I don't believe that there is anything that can be done to prevent flyers rusting. When a flyer turns brown in color it is just a type of rust that causes it. If kerosene is being used to wash the flyers and rails, I would suggest that benzene be used instead. All flyers should be taken off and polished every two or three years.

Y. F. (R. I.)

How to Stop Shelled-off Filling.

EDITOR COTTON:

Regarding the question of "CONTRIBUTOR No. 4042", published in the August issue and asking about how to prevent filling shelling off, I notice he is running his 40-inch Draper looms 165 picks per minute. If he would run them about 160 picks a minute, he would get better results, not only regarding shelling off, but other troubles that will occur in a weave room where the looms are over-speeded. I think 165 picks per minute is too high for a 40-inch loom, for good results, and I am speaking from experience.

In his letter he does not state the size of his filling yarn. I have had trouble with yarn shelling off, and a lot of it. We have some yet, but very little, and I will explain just what we have done to cut it to a minimum.

We are running 25s yarn all through. In the spinning we run a No. 2 flange 1⅜-inch ring; No. 1—10 travelers weighing ten grains, 1½ circle; 1⅝-inch build or traverse; rail speed: 14 winds down fast and 30 up slow.

We run a feeler bobbin eight inches long, and take great care when doffing, as poor doffing makes a lot of double filling when running off. The humidity in the spinning is 60 per cent.

The filling is delivered to the weave room in trucks. We have our battery hands make sure to unwind the loose end at the barrel of the bobbin before placing it in the battery. If this is not looked after, double and crinkly filling in the cloth will result.

The shuttle springs must be kept tight, with the bobbin in the center of the shuttle. I like running the bobbin small end just a shade higher than the barrel end. A loose bobbin will cause a lot of filling to shell off. We run a hair-brush friction in the shuttle, one at the bottom and one at the top of the bobbin.

The looms should be run with as little power as possible, with the crank shaft perfectly straight up, not back center any, as that makes a late, harsh pick. As to checks on looms, we run the old Draper check, that is, leather strap around the picker stick. We run a double friction, that is, instead of two pieces on the casting where the strap takes its friction, we have three pieces, one inside and two outside. This is an improvement over the two-piece casting. On a 40-inch loom I prefer a thin leather strap about 1/6-inch thick.

Filling should be handled as little as possible. After taking it from the frames, there is nothing like trucks; they will pay for themselves in a short time.

We have a turbo humidifier system, with plenty of regulators, which we run at 80 per cent relative humidity in the weave room.

Our running time is 54 hours per week. We start speed at 7:00 A. M., and start our humidifying system at 6:00 A.M., and run it through the noon hour. We find it a benefit to start the humidifiers an hour earlier in the morning, especially in cold weather. Before we began doing it, we noticed that we got a lot of shelling off in the morning, especially on Monday.

In connection with this trouble, I might say that the spinner should not run too light a traveler. I should think the 80 up slow wind traverse this man says he has on spinning would give him a lot of trouble. Let him put a pick glass on the yarn to see whether one wind is not riding the other on the same layer. I would suggest that he cut both his up and down traverse, that is, use half of each.

P. T. S. (MAINE).

EDITOR COTTON:

In the August issue, "CONTRIBUTOR No. 4042," wants to know what causes filling to shell off in the loom. I have had this trouble on several different occasions and I had always thought that this was due to soft-nose bobbins. In one mill where I had charge of the spinning we tried about everything we could think of to stop the filling shelling off, but every once in a while this trouble would occur.

The boss weaver informed me that one of the weavers happened to be watching a loom just as the last of the filling was running off the bobbin, or just before the bobbin changed, and he noticed that the filling shelled off the empty bobbin just at the change. We were using the regular Draper filling bobbin without the cone on the lower part of the bobbin and the bobbins were enameled. We afterward changed to the Draper bobbin with the cone on the bottom and our trouble stopped.

The bobbin with the cone is so made that the cone is formed by steps, each step inclines toward the larger part of the bobbin, this prevents the yarn slipping off when the last of the yarn is winding off the bobbin.

I am in favor of the bobbin without the cone, because with this kind of bobbin it is necessary to use a traveler which is one or two numbers lighter; this is in the favor of the spinning. The larger diameter bobbin will require a heavier traveler to prevent the ends from whipping down after doffing. If the regular Draper bobbins were ridged or grooved the whole length of the part upon which the yarn is wound, the yarn would not shell off. Filling bobbins, as a rule, are tapered and ridged or grooved only about two-thirds of their length. When the last of the yarn is winding off the bobbin there is more tension on it and just as the last part is winding off there is a vibration which is caused by this increased tension. This vibration loosens the last one or two layers and if there are no ridges or grooves on the lower part of the bobbin the filling is apt to shell off.

I am well aware of the reason why filling bobbins are tapered and why there are no ridges or grooves on the lower part of the bobbin, it is to assist the yarn in winding off and to prevent too many filling ends from breaking in the weaving. Another reason for the bobbin being tapered is to reduce the tension on the filling in weaving.

the LABOR EXTENSION (Multiple Loom) SYSTEM--

and Cheaper Bobbin Cleaning

The following are excerpts from an address on the Labor Extension (Multiple Loom) System by Mr. J. M. Barnes of the Barnes Textile Service, Boston, Mass., at a meeting of the New Bedford Textile Council.

"In general, the duties as performed by an individual operative under the old plan may be split into three divisions, as follows:

"1—Duties, the performance of which require considerable training and a definite amount of natural skill.

"2—Duties, which require a shorter period of training, and which may be described as semi-skilled.

"3—Duties which can be performed by operatives with practically no training in mill work.

"By taking away from the expert operative those duties which come under headings two and three, it can be readily seen that she can do only the skilled work on more machines at higher wages and all the other duties can be performed by others with pay in proportion to the requisite skill.

"This is nothing more or less than putting into effect the methods which are proving successful in other industries . . .

"The ordinary weaver, especially on automatic looms, spends a high proportion of his time on unskilled work. We believe that this condition is wrong and in many mills we have been instrumental in correcting it.

"Careful time study reveals two important factors in determining what changes can be made to correct present conditions.

"1—What percentage of the weaver's time is employed doing actual weaving? By weaving, we mean picking up warp ends and starting looms.

"2—What causes the loom to stop. Our studies reveal the basic causes for loom stoppage, whether it be the warp, filling or mechanical troubles. Some of these causes can be practically eliminated, resulting in higher percentage of production and better quality cloth, as well as lower costs.

"Better running work, that is, less loom stoppage, naturally mean that the weaver can run more looms. However, take away all battery work and any other labor which is not strictly weaving and the weaver can run still more looms."

What Mr. Barnes says of the weaver and his looms is also applicable to the spinner and his spinning frames. A study conducted by ourselves indicates that about 15% of spinners' time was chargeable to "bobbin cleaning."

For years Termaco Roving Bobbin Cleaners and Utsman Feeler Bobbin Cleaners have helped mills remove the *costly* unskilled labor burden from the shoulders of weaver and spinner. They have also helped to fix responsibility for waste and have prolonged the life of bobbins.

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As long as there is yarn on the bobbin there will be no shelling off as the yarn on the bobbin acts as a drag. I am inclined to believe that tangled and soft nosed bobbins are apt to shell off, but I have never seen it proved.

I have tried about everything to prevent yarn from shelling off and have come to the conclusion that about all the trouble in filling shelling off is caused by smooth-faced filling bobbins.

N. B. M. (MASS.)

Figuring Eyes Per Inch in Harness.

EDITOR COTTON:

In the August issue, "CONTRIBUTOR NO. 4037" asks for information on figuring the number of eyes per inch in loom harness.

When figuring for harness specifications the width of the warp in the reed must first be found, because the spread of the warp in the harness should be as near the width of the warp in the reed as it is possible to make it. The importance of this can easily be seen, for if the spread of the warp in the harness is less than its spread in the reed the harness eyes are distorted, excessive wear occurs on the outside of the harness eyes, and the weaving quality is poor. Likewise, if the spread of the warp in the harness is greater than its spread in the reed the warp enters the reed fan-shaped. Again there is distortion, poor weaving, and the side pull wears out the eyes on the edges of the shades faster than those in the center.

To find the width of the warp in the reed the total number of dents occupied are divided by the number of dents per inch in the reed. In this connection it is assumed that the cloth is reeded two ends per dent throughout and that a 68 reed (68 dents per inch) is used. Therefore:

5,350 ÷ 2 = 2,675 dents occupied.
2,675 ÷ 68 = 39.33 inches, width of warp in reed.
5,350 (eyes) ÷ 6 (shades) = 891.66 eyes per shade.
891.66 ÷ 39.33 = 22.67 eyes per inch.

As it is likely that an inch or more of harness is desired on each side of the warp, this harness would be probably 42 inches wide. That is the specification to the harness maker would include among the usual details, 952 eyes per shade, spread on 42 inches, six shades per set.

CONTRIBUTOR NO. 4067.

EDITOR COTTON:

I noted the question in the "HOW OTHER MEN MANAGE" department of the August issue, concerning the method of figuring the eyes in the harness for six-harness 144-sley broadcloth.

My method is, first subtract one from the sley, then multiply the remainder by .95. The result will equal the number of eyes per inch in the set. To find the number of eyes per inch per harness divide by six.

144 — 1 = 143
143 × .95 = 135.85

$$\frac{135.85}{6} = 22.64 \text{ eyes per inch.}$$

The spread of the yarn in the harness is the same as that in the reed. If the actual number of dents per inch in the reed are known, divide by three, that is, if it is reeded three to the dent; this will give the actual number of eyes per inch in a harness.

P. R. (MASS.)

"Promotion in the Mill."

EDITOR COTTON:

I have read the article contributed by "E. S. (CHINA)" entitled "Promotion in the Mill," appearing in the August issue of COTTON, this being a comment on the letter by "N. E. W. (MASS.)" which was published in the January 1928 number, so I thought that a few words relating to the practical man in the mills might set the practical men to thinking; also, some who are not so practical.

Quoting from "E. S." "Can the practical man face the new attacks which are always likely to be sprung upon anyone's market in changing and meeting this competition?" The writer believes that he can, and does. Practicability is one of the essential factors of industrial management. When any new ideas are put up to the practical man he asks, "Will it work? Of what benefit will it be if it works? What is the cost?"

This is not all there is to it, for when any new idea is presented to the practical man it starts a train of thought that may lead to something better, at less cost. The up-to-date practical man is never in a rut; he is alert to what is going on; he reads the trade papers, magazines and books relating to his particular line of endeavor, for information that will stimulate lines of thought; for the purpose of self improvement; so that he will be worth more to himself and to his employers and for the satisfaction of knowing the how and why of his particular job.

Practice and theory are not opposed, one to the other, but theory is dependent upon practice for results.

While it is said that the practical man is a graduate of the School of Hard Knocks, he is, as a rule, willing to listen to reason; willing to be shown; invites constructive criticism and friendly discussion. It is not necessary to attend a textile school to learn how to run a mill. We know that the advantages of a technical school or college are worth while, providing one is able to classify the precepts, information and problems presented. It is knowledge coupled with wisdom to apply that knowledge, that counts. Does the graduate of a technical school or college really understand what he has been taught, and is it practical? If the practical man could have had the advantages of higher education, coupled with a personality capable of inspiring confidence in others, he would be a leader in his chosen line of endeavor. Not having had the advantage of higher education, he buckles down to study in his spare time, often studying until late at night. What he studies is brought to bear on his work in the way of comparison with what is, and what ought to be done, and with what others are doing in similar lines. Having the right mental attitude toward his job, he looks around to see if improvements can be made. From his studies he gets information that sometimes puzzles him, so he puts it to the test to determine the right or wrong of it. The practical man knows that he does not know all that there is to know about his job, so he assumes that he is "JIM" and gladly welcomes the advice and criticism of "OLD TIMER," even if it does make him squirm at times.

The practical man ponders, critically, if he ever will be able to master the problems of mechanics with the same ease that "WASH" does. He knows that other men have faced the same problems as he himself has. Therefore, being a practical man, he reads "HOW OTHER MEN MANAGE," and if necessary, will travel far to obtain information to aid him

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in his work, which is gladly accepted, no matter from what source the information is derived.

The highest efficiency can be attained by the practical man. No one man knows all there is to be known about anything, but he can still learn. "Industrial Management" is not beyond the reach of the practical man if he will devote a few hours a week to the study of the principles of industrial management. The practical overseer gains his knowledge through observation, investigation, analysis, experiment and reasoning.

There are very few overseers these days who cannot do all the figuring required of them, and those who are ambitious, will try to learn more. At a certain trade school which the writer attended winter evenings, there were enrolled an overseer of weaving and five of his loom fixers and an assistant cloth inspector. These men traveled twelve miles to get to the school. From another mill, three miles away, came the overseers of carding, spinning and weaving. All of these men had clear ideas of the value of systematic and progressive study along the lines in which each was interested.

The great electrical plants rarely take the university graduates directly into the engineering departments, but they are put to work in the shops to become familiar with all phases of the work from the ground up. This is done in order that the coming engineer will not only have a technical, but also a practical education. Why should not the textile school graduate round out his education by practical experience in the mill? He would get some valuable information that the school does not teach and that is not published.

CONTRIBUTOR No. 4070.

Roving Lapping on Wooden Middle Roll.

EDITOR COTTON:

A number of things might tend to cause the roving to lap around the middle spinning roll—as described by "CONTRIBUTOR No. 4047," on page 1047 of the August issue of COTTON—such as dirty rolls, burrs on rolls, improper roll setting, wooden roll not turning freely, and so on.

I have in mind one mill with somewhat similar conditions, where this trouble was party eliminated by a slight change in the break draft, two teeth being added to the driven gear on the middle steel roll. In this particular instance, 1 3/16-inch to 1¼-inch cotton was used with a draft of 12. A wooden roll weighing 1375 grains was used —about 100 grains heavier than that mentioned in the inquiry—and the rolls were spaced 1 5/16-inch between the back and the middle and 1-inch between the middle and the front. In measuring the roll spacing the centers of the rolls themselves are considered and not the edge of the slot on the cap bar as about ⅛-inch play is found at the slot holding the wooden roll because the ends of the wooden rolls are smaller in diameter than the standard rolls.

This mill had considerable trouble with roving lapping on the bottom middle roll, and several experiments were tried. It was found that by replacing the 23-tooth gear on the middle rolls with a 25-tooth gear, the conditions were greatly improved, although the trouble was not completely eliminated. This changed the drafts between the back and middle rolls and between the middle and front rolls from 1.22 and 9.81, respectively, to 1.12 and 10.67. Undoubtedly the twist in the roving has an important bearing in this

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matter, and while the suggested change might not remedy the trouble of "CONTRIBUTOR No. 4047" at all, an experiment along this line might prove helpful.

CONTRIBUTOR No. 4071.

Evaporation, Humidity and Ventilation

EDITOR COTTON:

Under the title "An Inexpensive Cooling System" in your August number, "CONTRIBUTOR No. 4040" touches upon the important subject of keeping a weave room cool and properly humidified by combining ventilation with evaporation. Your contributor is quite right in condemning the operation of a weave room with windows closed in hot weather. He points out ventilation will improve the conditions, which is unquestionably true.

It is a mistake, however, to burden the fans of either disc humidifiers or spray humidifiers with the task of sucking air through supply pipes because disk fans are not designed for that purpose. A disk fan will move more air when running "free" than when the fan is located at the delivery end of a supply pipe, because it requires power to move the air through a supply pipe of any considerable length or even through a comparatively limited ring or orifice. If there already are humidifiers operating in a weave room it will reduce their evaporative capacity and impair the proper delivery of the spray if they are connected up with supply pipes.

The rate at which natural ventilation will go on through window transoms which are even slightly opened is very much greater than is generally realized. If there is an appreciable breeze, the air will enter the transoms on the windward side of the mill and escape through ventilators, monitors or transoms on the leeward side of the mill at a surprisingly rapid rate. Even when there is little or no breeze natural ventilation goes on by levitation through open transoms at a rate which is sufficient for all ordinary purposes, and which will insure good ventilation without lowering the humidity provided there are enough humidifiers to evaporate the amount of water which corresponds to the "demand for moisture" imposed by the existing weather conditions.

If the room is equipped with a modern humidifying system controlled by automatic regulators, the best way to operate it during extremely hot weather is to open the windows or transoms by moderate amounts only on the windward side of the mill and by slightly greater amounts on the leeward side. There need be no hesitancy in increasing the window opening so long as the automatic controllers cut off the humidifiers occasionally for a few minutes at a time. This condition of operation shows that the evaporative capacity exceeds the demand for moisture.

If it is found that the automatic regulators are keeping the humidifiers on all the time and the humidity is getting too low, close the windows slightly until the regulators begin to function. If it is found that one can not keep the windows open at all and retain the proper humidity, or if the room gets too hot, it is a sure sign that there are not enough humidifiers to supply the demand for moisture, and no amount of artificial ventilation will remedy the lack of evaporative capacity. If the evaporative capacity is adequate there will be no difficulty in maintaining a reasonable rate of natural ventilation and one should be able to keep the humidity up to requirements at a very comfortable temperature.

The heat generated in the weave room is derived partly from the consumption of power, which is dissipated as heat, and partly from the inward convection of the sun's heat through roof and side walls of the building. A weave room in the South receives so much more heat through roof and side walls that it requires very much more humidifying capacity than a mill located in New England. Of course it is rarely that we find two weave rooms whose requirements for moisture are exactly alike, but the rate at which water should be evaporated runs into surprisingly high figures. In New England each 100,000 cubic feet of mill content ought to have sufficient humidifying capacity to evaporate at least 20 gallons of water per hour in order to hold the humidity at 85 per cent or 90 per cent and keep the room at substantially the same temperature as the air outside. It would be better to evaporate 24 gallons per hour as this would lower the weave room temperature at least 4 degrees below the outside temperature.

A southern mill under the same circumstances should have an evaporative capacity of from 24 to 28 gallons per hour for each 100,000 cubic feet of mill content. Lower evaporative capacities than those stated will be sufficient in ordinary weather, but will result in very oppressive conditions in extremely hot weather.

If the evaporative capacity is short there are two things that may happen, ventilation at a loss of humidity, or humidity at the expense of high temperature and grave discomfort. Plenty of water evaporated rather than artificial ventilation is the best means for insuring a comfortable weave room with good humidity.

THIRSTY COTTON.

Running Humidifiers Over the Week-End.

EDITOR COTTON:

In answer to the question of "CONTRIBUTOR No. 4016" concerning the running of humidifiers over the week-end, will say, I do not see that it is necessary to run the humidifiers during the whole of the week-end. My recommendations are that the mill should have a sufficient number of automatic controls in all departments, so that the same relative humidity can be kept in all sections of the different departments. The man in charge of the humidifying system should be held responsible for the humidity conditions on starting time—Monday morning.

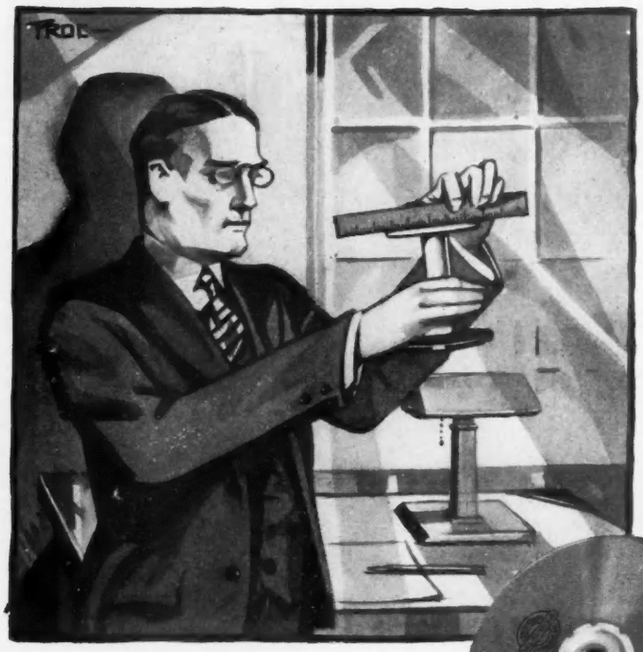
The humidifying system should be started up early enough to get up the humidity to the mill's standard relative humidity conditions in the departments two hours before starting time. The time to start up the humidifying system depends on the atmospheric conditions over the week-end where the mill is situated.

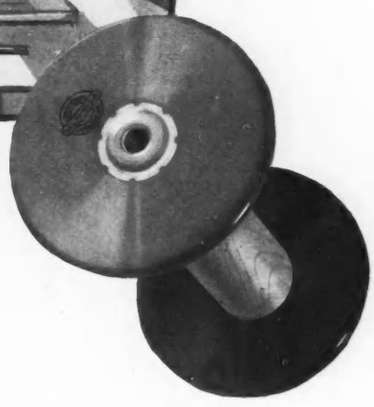
In one mill during the winter months, we would start up our system at 3:00 A.M. and get excellent results at starting time. I can frankly say that a good many mills neglect this important condition, and during my experience I have seen much bad work, waste, and discontented help, caused by poor humidity conditions on starting up on Monday morning. Many mornings good running conditions were not obtained until 10:00 A.M.

Mills running a day schedule only, should have the humidifying system started up early enough every morning to have the mill's standard relative humidity conditions at starting time.

I do not think it is good practice to allow artificial

"That's why!" said the TREASURER





"We'll get more value in SPOOLS"

THE mill treasurer returned from a visit to a neighboring mill with a cheerful look on his face. "I found the solution to our spool problem over there," he remarked to his assistant.

"My friend Allen is using Lestershire Fibre Spools. He is getting good results. Much better than we are, in fact. By equipping with Lestershires he is not only effecting spool economies but is securing a better quality of production.

"He showed me that Lestershires are more even, run truer and are uniform in all dimensions. In every detail of construction they are more accurate, he pointed out, and they represent extra value also through the selection of superior fibre and longer dogwood bushings. That's why" said the Treasurer, "we'll start using Lestershires and get this extra value too."

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YOUR NAME, PLEASE.

Cotton, Nov. 1928

humidity to be put into the mill during Saturday afternoon and evening and on Sundays, when the machines are stopped. The machine parts are likely to rust and the machines to start up heavily on Monday morning. I have obtained good results on cold dry week-ends by the use of warm water in the humidifying system.

The mill should not allow the temperature to fall to any considerable amount below the mill's standard temperature readings during the week-end stoppage.

CONTRIBUTOR No. 4026.

"Black Oil in the Work."

EDITOR COTTON:

While reading the article in August COTTON by "E. F. (S. C.)," "Black Oil in the Work," which he wrote for "OLD TIMER'S" corner, I was reminded of a report I made to a superintendent some time ago. Possibly some of the information would be of interest to someone else.

OLD-TIMER knows and we all know that the more oil we use the more oil spots we have. I can think of only six reasons for all the oil spots that were ever made. They are as follows:

The oiler, careless, no ambition, and was never taught.
The oil can, split, broken or too large a hole.
The oil, the wrong grade and the same type used all year.
The grease, not the right type as it runs too freely.
The weather, makes oil and grease run, affects the metal.
The machine conditions, worn and dirty.
Possibly we could add one more, ignorance of mill work.

When I was a card oiler (I wasn't much because no one took me to one side and explained the importance of the job to me; they told me about a few oil holes and then said, "Don't get hurt"), the type or grade of oil didn't worry the overseer one particle. I used a lot of oil where it didn't do any good and not enough where it was really needed. Some years later I was told by a superintendent that his best oiler was worth more to the mill than he was, for an oiler can stop a machine for a longer time without excuse or reason than he could; also, he could keep them going at less cost than he could. Now I believe as he did, that a good oiler means a lot to a mill.

I went to one mill and asked the overseer about his oil cans. He said that they were all new ones of a type where only one drop comes out at a time. We looked at the cans and the holes in the top of the spouts were not less than 3/32 of an inch in diameter (we measured them with a trumpet gauge) and, with a slow motion movie camera, we *might* have seen each drop in the stream as it came out. I found this out one hour after I had gotten to the mill. He said that he had waited in the office for two solid hours to see me.

Another mill has made a considerable saving by changing the type of oil they use in the Summer months. They also use a different type of grease during the Summer months. We all know that the weather causes metal to expand and contract; this causes some oils to become thick or thin, or to lose body. We use different types of oil in our cars in the Winter and Summer.

When a machine is worn out oil just naturally leaves and is generally found where it isn't supposed to be. When the machine isn't cleaned we all know what happens.

When the man who buys the oil doesn't know what it is to be used for some one is just naturally out of luck.

I will give a general cleaning and oiling system for the card room and spinning room.

OILING PICKERS.

Beater bearings and shafts that are worn should be repaired. Care must be used not to get too much oil in plain bearings or too much grease in ball bearings (the oil or grease should have sufficient body so that it will not run too freely). Wipe the inside of the beater chamber not less than twice each day.

Do not use too much oil on the apron shafts and bearings. Clean or brush out the evener chambers, or box around pedestals, at least once each day. Worn evener cone bearings and shafts should be repaired, especially where the top cone is set high on the side of the machine or directly under the apron.

CARDS.

Repair worn bearings or shafts on licker-in, doffer and cylinder. Some folks either forget or don't want to oil the doffer bearings and the grinder forgets that the doffer surface speed is similar to that of the cylinder when grinding and the result is worn bearings. Later someone will think to oil the doffer bearings and put on too much oil with the result of oily card clothing, oil spots and neps. Don't use an oil that is too light or with too little body. Watch this especially in the grease receptacles on the doffer, licker-in and cylinder. Clean out the oil hole in the licker-in shroud and use only a few drops of oil.

No oil should be used on the lap roll of the card when it does not run or start as it should in the morning. Comb boxes are a real evil because they don't receive the proper care. It is best to put a little oil in the comb boxes once a day, or twice a week, instead of filling them up once a week. Try to fix all leaky boxes; a tin casing can be put around them to prevent the oil flying. Many mills use an oil that is too light and could remedy considerable of their trouble by using a heavier oil. I recently heard of a mill that was trying out a light grease in their comb boxes in the summer.

DRAWING.

Use from one to three drops of oil in each stand instead of a thimbleful. Rough flutes gather up fibers, which in turn, gather up oil and this gets into the stock passing through. Many mills use what I call web guide plates, which, in my opinion, are not necessary, unless waste stock is being used, or such mixes as flax and cotton. Web guide plates not only cause a good number of the oil spots, but they cause more uneven work by causing dirt or lint to gather, and this makes a poor selvage. Keep the fly wiped away from the trumpets.

Clean the top roll bearings at least every two weeks and oil them with a few drops of heavy oil instead of a light engine oil. Trumpet gear raceways should be cleaned once a week at least and oiled with just a few drops of oil. At least once each day wipe the surface that touches the fibers when the can is full. Replace all oily clearer cloth.

ROVING FRAMES.

Wipe the top of the creels before new roving is laid up. On the slubbers wipe the creel roll. If the bobbins in use are oil-soaked they should be taken out and burned. If only a few of them are oil-soaked they could be taken out to be used on colored work or waste mixes. Have drip pans under all overhead bearings, as one drop from above will cause tears to be shed later.

Results Guaranteed!

Tycos Slasher Control System will assure YOU of a decrease in Warp Loom Stoppages

IF you install the TYCOS System of Slasher Control under the supervision of our engineers, the Taylor Instrument Companies will guarantee you a decrease in your warp loom stoppages.

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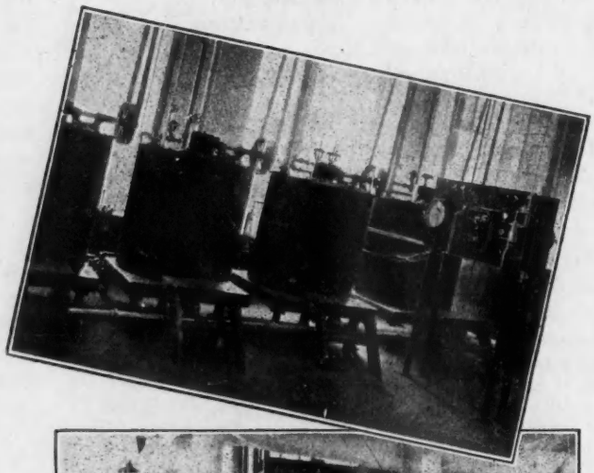
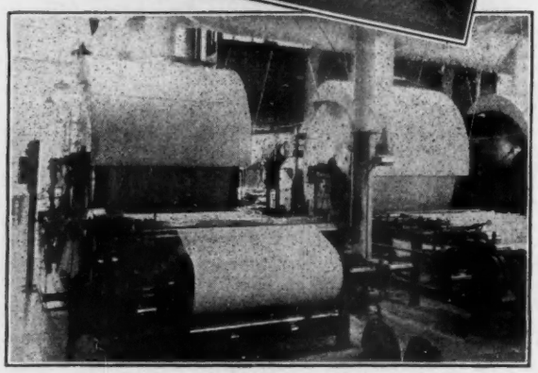
The TYCOS System of Slasher Control has met with such success in every mill in which it has been installed, that we can now make the revolutionary guarantee stated above. So reliable the functioning of TYCOS Instruments and so thorough the work of our engineers that, after surveying your conditions, *we can guarantee you a minimum decrease in your warp loom stoppages.* This guarantee is for a minimum. The maximum savings will be far in excess of this figure.

Entrust your slashing to this ever vigilant system which provides control through the entire slashing process. It has been responsible for substantial saving wherever installed. It includes temperature regulators on cookers, size boxes and slashing cylinders. The warps resulting from its use are free running in the looms, and uniform. Its results are *guaranteed.*





3 Steps to SLASHER ROOM PROFITS. Every TYCOS Slasher Control installation embraces 3 definite steps, **SURVEY,** whereby your equipment is inspected, and recommendations made; **ANALYSIS,** chemical and microscopical, of your raw materials and slashed and unslashed yarns; **INSTALLATION** of TYCOS Instruments, with proper instructions to your workers so that they may operate them at the highest efficiency. It is only by following these three steps that our results are guaranteed.

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Pack all roving. It takes longer but it pays. If that is too much trouble, why not let cotton hit cotton instead of the oily top, or bottom, of a bobbin hitting the cotton. If the roving has got to be thrown in the box, the tender can with a little practice, throw the roving in the box properly, but very few care because the overseer doesn't.

Keep all the flyer tops clear and cleaned out. Lint that gathers in the flyer eye absorbs oil and the roving that passes through takes up the oil and sometimes the waste. There should be some system in each mill whereby the eyes of the flyers are cleaned out twice a year. The tenders could clean out so many each day. In some mills they hang the flyers on a box and blow them out with air. If this is done, be sure that no water is in the air line.

Wipe the tips of the top rolls with a piece of clearer cloth that has been dipped in oil and wrung out. This will save oil and a lot of cleaning. Wipe the flyers at each doff on work coarser than 3.00-hank; twice each doff on work from 3.00- to 6.00-hank and three times on work from 6.00- to 9.00-hank, etc. Take off all back boards where the roving drags or touches as it comes to the back of the roll stands or rolls. Replace all oily clearer cloth, and move the cloths slightly every two weeks. A worn nap can be brought up for more use by using a piece of card clothing and a little elbow grease. When oiling spindles or bolsters, don't use an oil can with a spout that will let the oil come out like an April shower.

Clean out the doffing or roving boxes and have those greasy spots wiped out. The best box or truck I know of is a regular wooden box lined with beaverboard or fiber. This keeps the box from splintering and can be replaced at very little cost.

SPINNING.

Keep all oily clearer cloth replaced and oil the tips of the top rolls by the same method used in the card room. Keep the cap bar nebs clean and oil the saddles with one drop of heavy oil.

When the push board cleaner, or thread board cleaner, becomes worn and dirty, get a new one or at least put on new felt. This goes for the swab or tassel that hits the ends occasionally. Considerable dirt drops back as the cleaning is being done. I would recommend that a piece of card clothing be fastened to the back of the board.

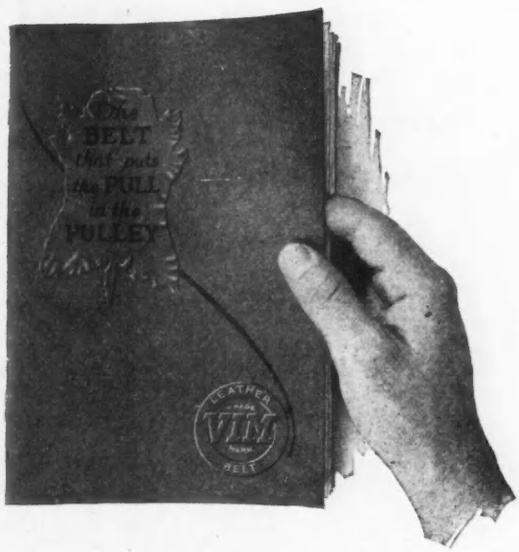
Don't use any brush where the bristles are too short; either finger, hand or roll brush. When cleaning the base of the spindles or around the bolsters, tilt the air hose down toward the floor so as not to blow the lint across on the other spindles.

There is a cleaner that has been in use for several years which is the best thing I know of for cleaning the roller beam. This cleaner prevents any dirt from falling back into the yarn. I will describe it to anyone who is interested at a later time. I strongly recommend it for use in hosiery yarn mills.

Y. F. (R. I.)

Chemical Company Enters Textile Field.

The Federal Phosphorus Company, Birmingham, Ala., after a careful survey of the consumption of textile chemicals by southern textile mills, has decided to enter this field and develop a full line of textile specialties. Herbert Booth, who has had twenty years experience in the selling and practical application of textile chemicals, will have charge of the development and sales of these products. The Federal Phosphorus Company is one of the country's largest producers of phosphoric acid and phosphate salts by the electric furnace process.



New, better, enlarged edition

Every reader of Cotton is entitled to a copy provided he is in any way responsible for power transmission *results*.

Preceding editions of "The Belt that puts the Pull in the Pulley" are well known all over the world. This new edition (which is the sixth) is *more than twice as large.*

If you are a user of belts, electric motors, or transmission of any kind that might involve the use of belts, this new 68-page treatise will be found very helpful.

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However, don't suspect that VIM ever sidesteps college laboratory tests or any other kind of tests. And wherever VIM has been tested under *actual working conditions* alongside of the best substitute and oak leather belts obtainable in the world, VIM has also *invariably* won out.

Remember, please, that you are always welcome to the services of a Houghton Man. He will gladly call to go over your power transmission problems with you without making you feel obligated in the least.

- - — — — —Fill in, tear off, and mail.. - - - — —

E. F. HOUGHTON & COMPANY

P. O. Box 6913 **North Philadelphia, Pa.**

And all over the world

Please send a copy of "The Belt that puts the Pull in the Pulley" to

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LOW—so that the loading and unloading will be made easy and the contents of the basket are always visible. Self contained motor and the Tolhurst Centrifugal Clutch add a very definite touch of simplicity while at the same time economizing in power. This arrangement eliminates the necessity of pit or special foundation and the machine can be moved from one department to the other when occasion demands. The Tolhurst Automatic Timer times the load, applies the brake and signals the operator—thus assuring both uniformity in wringing and a big saving in operator's time.

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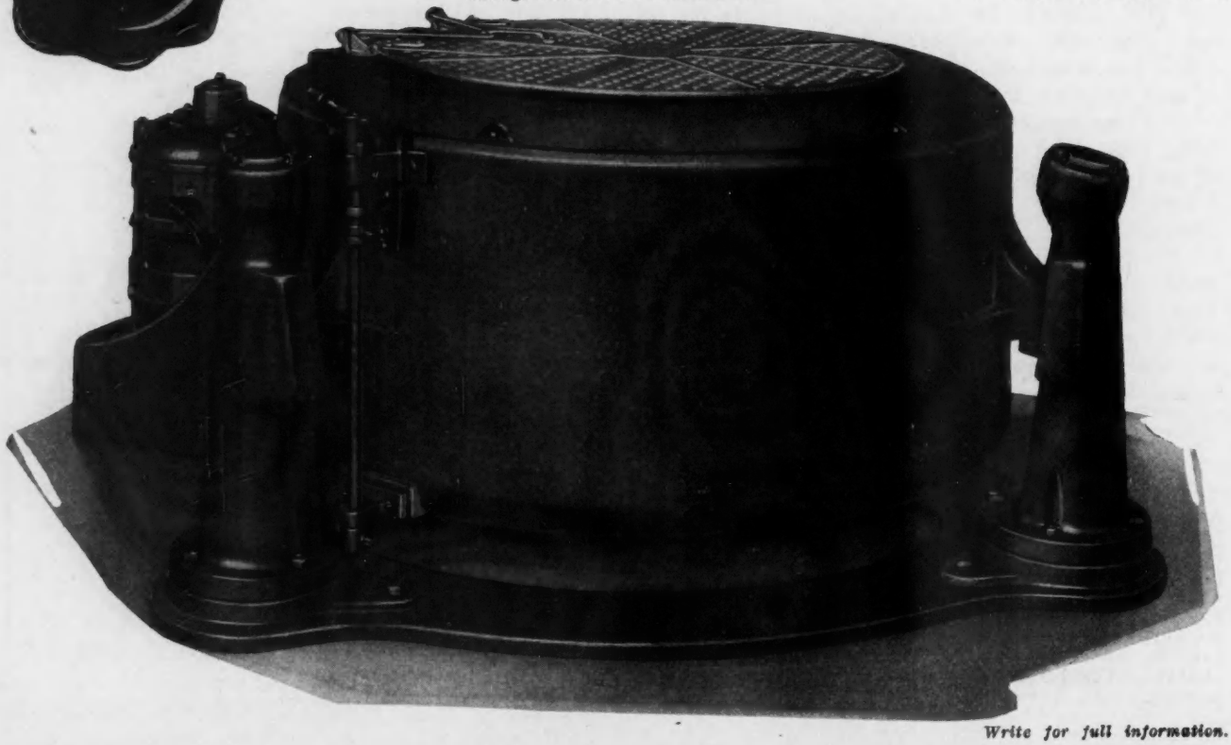


Write for full information.

Eliminating "Slack-Sided" Cloth.

EDITOR COTTON:

In the discussion department of the August issue, I notice that "L. D. (GA.)" wants some suggestions as to what will prevent "slack-sided" cloth. I find that keeping the sand roll and cloth roll in line with each other will aid in preventing this, and I would also suggest that he keep the cloth roll blocks in good shape and examine the sand roll fillet to see whether it is slack at the end.

P. E. (S. C.)

Waste Figures on Belting Duck.

EDITOR COTTON:

Waste percentages on belting duck, and methods of controlling this waste, were requested by "CONTRIBUTOR NO. 4059" in the October issue of COTTON. I am not making belting duck at this time, but from past experience, I feel that from one-half to three-fourths of one per cent is ample to cover filling waste made on this class of goods; this percentage being based on the total weight of the woven fabric.

I find this figure checks very well with the goods we are making at this mill—plied filling ducks—which are more or less similar to the belting ducks.

The best way to control this filling waste is to give the weavers good filling, properly wound and made to fit and fill the shuttle. This is half the battle. The other half is to train the weaver not to stop his looms until the shuttle is almost exhausted. To do this, he must have quick eyesight and be able to determine the amount of filling while the loom is running, simply by glancing at the shuttle as it goes from box to box. I realize this is not a complete answer, but it may be of interest.

CONTRIBUTOR NO. 4061.

A Cleaning Schedule for the Spinning Room.

EDITOR COTTON:

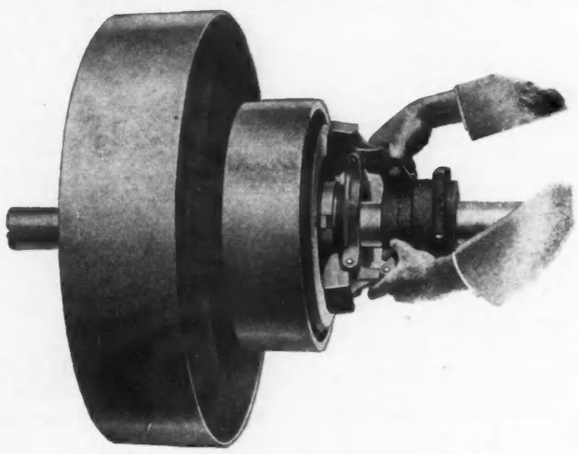
In a recent issue, "B. T. (ALA.)," asks about using special hands for cleaning in the spinning room and how often should the cleaning be done. I will say that personally I do not believe in using special hands to do the cleaning, but am glad to give the method of cleaning that I have found best. I think that a spinner should be given the number of sides that she is capable of running and at the same time keep them clean.

The system I have been using is as follows:

Monday: Clean and oil top rolls.
Tuesday: Clean top and bottom creels.
Thursday: Clean top and bottom creels.
Friday: Clean steel roll stands.
Saturday: Clean top and bottom creels.

Brush ring rails on Monday, Wednesday and Friday (no separators are used on the frames). Pick the clearer boards the first thing in the morning and again at noon. Mop roller beams out every day except Monday. Brush guide wires once each day while the frame is being doffed. Pass board along the thread boards four times daily—at 9:00, 11:00, 2:00, and 4:00 o'clock. Clean steel rolls the first week in each month. Brush the top of the creels each day at 4:00 o'clock and on Saturday at 10:00 o'clock. The cleaner boy sweeps six times each day, does all the cleaning of the heads, weights, spindle rails and under work on 36 frames.

A new Friction Clutch



The Peerless
It's Unit Adjusting

The Peerless Unit-Adjusting Clutch is powerful yet compact; has few parts, all interchangeable; and all adjustment for wear is made at one point.

Adjustment is so simple that it can be made by anyone without the use of any special tools. Simply loosen the small hollow setscrews in adjusting nut and with clutch thrown out of engagement turn the toggle mechanism with your two hands—see illustration above; turning to the right to tighten the clutch and to the left to loosen it.

May we send you a copy of Bulletin No. 571?

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T. B. Wood Sons Co.
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NEW ENGLAND BRANCH: **Cambridge, Mass.**
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To transparent velvets

. . . du Pont Super-Extra gives exquisite delicacy in texture and tone

TRANSPARENT velvet commands recognition in fashion circles as the outstanding fabric achievement of the year.

And its success, as practically every manufacturer will tell you, is largely due to still another achievement—du Pont Super-Extra yarns.

To the mill man there are definite contributions which Super-Extra makes to sheer velvets. Among the most important are the following:

First—Super-Extra has *more* filaments per thread. It gives greater coverage. It makes possible that rich, "bloomy" surface.

Second—The added softness of Super-Extra lends a distinctive "feel" to transparent velvet—and to the finished garment the subtle draping qualities peculiar to this fabric.

Third—The subdued lustre inherent in Super-Extra yarn results in an exquisite sheen that no other yarn can give.

In considering the yarn best suited for fine quality rayon fabrics such as transparent velvet, do not overlook the fact that du Pont Super-Extra is being used today by the finest fabric houses in America. Transparent velvet is but one of its contributions to the textile trade.

There are several multi-filament yarns—but there is but one Super-Extra. It is made only by du Pont. For information and prices, write or wire Du Pont Rayon Company, Inc., Dept. B, Member Rayon Institute of America, Inc., 2 Park Avenue, New York.

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The spinners are running 10 sides of 128 spindles on numbers from 30s to 100s.

This may not be applicable to the work "B. T." is running, but I am sending it along in hope that it will be of some help.

J. J. W. (MASS.)

Weaving Cotton Yarn Without Sizing.

EDITOR COTTON:

The laying of the fiber on cotton yarns in order that a smooth round thread, devoid of any hairy-like appearance, might be made, has ever been an interesting problem for the advanced student of cotton yarns. (We are not considering gassing for this purpose at this time.)

Well might the manufacturer of cotton cloth ponder a bit over a statement made by the head of a large weaving mill a short time ago before a group of mill men discussing slasher problems.

The gist of his claim was: give him smooth round threads in his warp, (not exactly a gloss either) and he would weave anything in cotton without any size in the yarn. This theory obviously would eliminate the vagaries attached to the sizing of cotton yarns together with the over-drying or scorching on overheated cylinders, if carried into effect and found practical, would mean a tremendous change for the cotton textile industry.

This statement may seem extremely ridiculous to this generation of dressers of yarns, but to those of us associated with this line of work during the transition period from the old Whitehill dressing machine, to the modern way of preparing yarn for the weaver, it has a tendency to strengthen our views in relation to the methods in use today. "Scotch" has contended for many years that slashing is a very unscientific way of doing this highly important work, and in a previous article, inferred that the advanced thinker, as we like to call them—the newer type of mill man—will discover other means of doing it, radically different from that in vogue.

Here and there in the last decade the writer has "listened in" attentively, to certain discussions analogous to the foregoing, and it was only a short time ago that our attention was drawn to the old argument, why not prepare the yarn back in the spooling department.

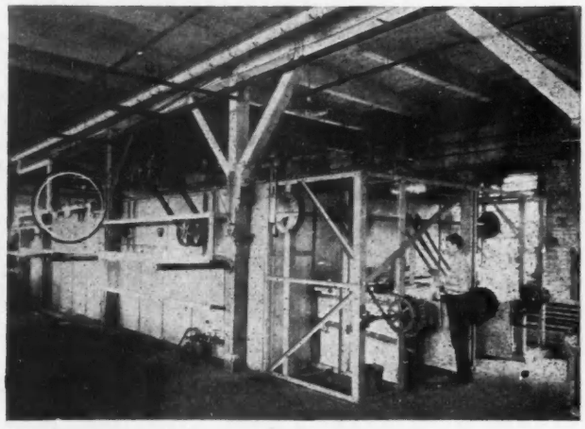
The theory that cotton yarn should be impregnated, coated or covered with some substance in such a manner as to make a perfectly round smooth thread, some substance that would wash off or could be removed easily in the finishing of the cloth, isn't entirely new, but when you hear it advanced, it is safe to presume that men are thinking in terms of progress and that sooner than we are aware, may realize it in fact.

Many attempts have been made in the past to smooth the yarn and lay the fiber while being processed through the slasher. The use of gums in the sizing is highly advocated. Formerly the sleeking-bar and the wet-splitting bar were used extensively. Others preferred the brushing of yarns.

All of these schemes have been used with a fair amount of success, but from personal observation and experimentation, I would not want to compare yarns smoothed by these methods with yarn dressed by the old Whitehill dresser.

By the old Whitehill dresser, each thread was sized and brushed separately while running through the machine.

This Advertisement is Addressed to Users of PROCTOR & SCHWARTZ DRYERS



Two No. 981 Sylphon Regulators installed in the steam line on a Proctor & Schwartz Dryer, to control the amount of steam entering the dryer. The bulb is located inside the dryer.

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Held in High Esteem

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PHILADELPHIA

July 17, 1928.

Sheffler-Gross Company
Drexel Building,
Philadelphia, Penna

Attention: Mr. M. Sheffler.
Subject: Sylphon Controls

Gentlemen:

We have been using your Sylphon Self-Contained Temperature Controls for several years and we have found them to be the most satisfactory self-contained instrument that we have tried out, both from the standpoint of close control and the standpoint of ruggedness.

What I mean by ruggedness is, that you have built the instrument in such a way, that it does not require any service or attention and this appeals to us.

We have had to call on your company only once for service, and that was given most prompt and courteously. We also have had occasion to call upon you several times for quick deliveries and have always gotten it. The result is, that we are very glad to say a good word for the Sylphon controls.

Yours very truly,

PROCTOR & SCHWARTZ, Inc.

A. O. Hurxthal,
Vice President.

No. 931 Sylphon Regulator

Of course, Sylphon Temperature Regulators may be, with equal efficiency, used on any make of dryer. We will be glad to advise relative to the installation of Sylphon Regulators. Write Dept. U.

THE FULTON SYLPHON COMPANY
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Compare this method with that in general use today where the yarn is assembled in the back of the slasher, going through the size rolls and being pressed, or pasted, into a compact sheet, and thence to the front, where it is ripped apart by the splitting-bars. There is absolutely no comparison as to quality. Of course a comparison can be drawn in this way, that one is good, and one is not so good, and it is obvious which process produced the better yarn.

While it is impossible to slash yarns without this hairy-like appearance, it is a very noticeable fact that the use of dextrine or British guns in the size, will pull the fibers in to a considerable extent.

Then again, we find that the use of tallow has a decided tendency to fluff or loosen these fibers, so that by the use of oils or soluble softeners, the situation can be helped in some respect. But the fact is, the loose fibers are already there, and it is an utter impossibility to size yarn so that it will be smooth and free from fiber, no matter what is used in the size mixing. The splitting-bars will upset any theory along this line.

Many old-timers were in favor of the sleeking-bar, to attain the much desired smoothness. These were usually smooth wooden bars, the width of the slasher and two or three inches wide and an inch thick. Some used them as they were; others preferred to have them covered with cloth. These bars were put in between the size box and the cylinder, with the yarn running over one and under the other, and there was a time when it was thought unwise to run without them. Just how much good they were, it is hard to estimate. The writer has experimented with them, and has failed to find them worth while in this era of production, but can distinctly remember when they were looked upon as an essential and proper dressing of cotton yarn.

The principle involved with the sleeking-bar in use was that the yarn running over and under these cloth-covered wooden-bars would be stripped of the loose fibers, and smoothed, and the fact that these bars have to be changed quite frequently in the course of a run due to the accumulation of stuff coming away from the yarn and adhering to the bars while running between them, allows the advocate of this form or method tremendous satisfaction, because it can be seen easily by the merest novice, just what is being accomplished by the use of the bars.

The wet-splitting bar is used in an entirely different manner, as will be seen in the accompanying illustration. If one bar is contemplated, a dividing string is put in between the sheds representing center, or that one representing the large bar in the front of the machine. When the string has been run up, and through the size rolls, an iron rod is inserted, placed in position and fastened on each side of the machine, as will be noted in the photograph.

Thus we have approximately one-half of the yarn on the top of the rod, and the other half on the bottom. By the use of this scheme, while the yarn is made smooth and the loose fibers are pulled off to a certain extent, the aspect has been changed to a considerable degree in front. Placing the fingers back of the big rod in front of the slasher, in the manner used to test the feel of the size ordinarily, we find that there is absolutely no kind of a hitch, due to the fact that the wet-splitting bar has opened the sheet while the yarn was wet.

Thirty odd years ago, in large New England colored mills, such as the York Manufacturing Company, it was an ordinary occurrence for the slasher-tender to use from one to three wet-splitting rods and smooth down and remove the loose fiber. In former years, when this scheme has been introduced and demonstrated by "Scotch", a great deal of interest was usually manifested.

Well do we remember what happened in one mill when one wet-splitting bar was put onto a certain kind of work. At this time an experiment was tried out by one of New England's recognized leaders in the cotton industry, and if we had foreseen or had had any intimation of what the results would mean, Mr. Man would not have seen what this one bar could do, not for a minute.

Upon being apprised of the results by the overseer in charge, he expressed the desire to watch the proceeding personally, and he was so impressed that he immediately sent for his boss carpenter, and, glory be! what a busy session we had for a season.

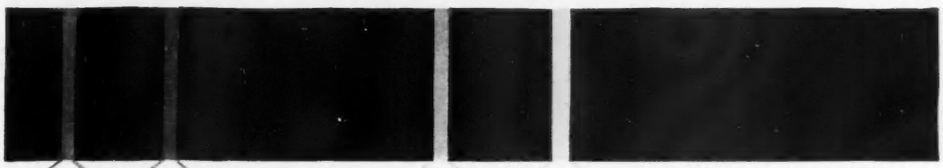
His argument was: if one wet-splitting rod can accomplish such a vast amount of good, then put in a complete set.

This scheme would not work out satisfactorily, for while we could handle one, two, and even three rods, when we came to six, seven or eight rods, it was a different proposition. So, after a strenuous period of trying, he came to the conclusion that it was not feasible on the type of slasher now in use.

In conclusion, it is quite safe to presume that anything in the line of progress is of vital interest to the cotton industry. Ideas which may appear radical today, may be eagerly sought after on the morrow. Many of the older

How to assure acute vision *without eye-strain*

Rough reproduction of the spectrum of Cooper Hewitt light showing the four colors which compose it, but not their relative proportion or intensity. Note the entire absence of red light. Brief No. 4 explains fully the advantages of this feature.



BLUE and violet (which have relatively low visual power) constitute only 10% of Cooper Hewitt light.

SINCE yellow and green, the best *seeing* rays known to science, constitute 90% of Cooper Hewitt light, workers do more and better work under this kind of illumination.

RESEARCH has shown us that the greater the heat energy dissipated in the eye, the more irritation results.

Small wonder, then, that Cooper Hewitt light, which yields 90% "cool" yellow and green rays (the very rays which give the most acute vision with least expenditure of energy), helps workers to see clearly without eye-strain.

That's one good reason why factories find employees do more and better work after Cooper Hewitts are installed. Not surprising, is it, that everybody works better when they all *see* better?

If you'd like a pamphlet outlining other scientific facts upon which good seeing conditions depend, write for a copy of Brief No. 4 entitled, "Visual Acuity: Its Importance in Industrial Lighting," an authoritative article on factory illumination, which is yours for the asking. You'll enjoy reading this instructive and interesting bulletin. Cooper Hewitt Electric Co., Hoboken, N. J.

Cincinnati Milling Machine Company, Cincinnati, Ohio
Cooper Hewitt illumination

COOPER HEWITT

A General Electric Organization

Cooper Hewitt illumination in the weave shed of the Lancaster Cotton Mills, Lancaster, S C. Every thread must be seen perfectly—so they use Cooper Hewitts.

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You can't depend on daylight

—but you *can* on COOPER HEWITTS

NO matter how good the natural light may be in your mill, short or dark days are certain to require *good* artificial light if you want production to stay above par.

And while you're about it, why not install a system that's even *better* than daylight? You can do exactly that if you choose Cooper Hewitts! If you doubt it, consider, these facts:

Cooper Hewitts give uniform lighting 24 hours a day. Daylight constantly varies in intensity.

Cooper Hewitts are free from glare. Daylight is often glaring.

Cooper Hewitts reveal fine details which remain unseen in daylight.

Cooper Hewitts cast no deep shadows. They put the light exactly where you need to see. Frequently daylight illuminates only one side of the work.

These facts, and others of equal importance, are easy to demonstrate—right in your own mill. A trial installation made without obligation to you, will enable you to prove the facts to your own satisfaction. Why not make the comparison? No need to scrap old equipment until you're convinced that it's a handicap. Cooper Hewitt Electric Co., 853 Adams St., Hoboken, N. J.

COOPER HEWITT

A General Electric Organization

mill men seemingly, fail to comprehend the situation, and expect the past to keep step with the future. 1900 machinery and 1900 methods will not, and should not, be expected to do a 1928 job as it should be done, and the 1928 man cannot expect progress unless he looks ahead at least a few years.

The newer type mill man must need be a radical, in every way, from processing his goods to educating the public to the fact that cotton cloth is better than anything else made. Then, with the recognition of skilled help, (another radical move) will the cotton industry eclipse anything in the line of wearable stuffs made, and go onward to its rightful place in the sun.

SCOTCH (MASS.)

Managing a Speeder Room.

EDITOR COTTON:

To manage a speeder room successfully requires very close attention to details. The important objects to bear in mind are as follows: 1. A maximum production. 2. A product of the highest possible quality. 3. Low labor cost. 4. Upkeep of machinery.

To obtain a high production does not necessarily mean that the speeders must be speeded up to the limit. Often just the reverse is true. Production can sometimes be brought up by decreasing the spindle speed. Slower speeds mean less wear and tear, fewer broken ends, and better running work in general.

Every carder is acquainted with the fact that less twist automatically increases production, and takes advantage of this fact. However, no one should let his enthusiasm run away with him in this respect. Too little twist will cut production, by increasing the percentage of stoppages due to broken ends, and bobbins breaking back in the creels, necessitating stoppage to remove singles from the bobbins or else letting it run, thereby producing unnecessarily bad work.

Another result of too little twist will be stretched roving. This will make a very poor yarn, and will also throw the daily size off. I have known several cases where the sizing jumped up and down every day due to this cause. The sizer would get stretched roving that would jump as high as twenty to thirty grains light, and then all draft gears would be changed to compensate for the stretch. While draft gears were being changed, of course the frames had to be stopped, consequently taking another little slice from the daily production. This almost daily changing of draft gears means more in lost production than one would suppose. In one case I refer to, there were about thirty of the speeders with double end gearing, so that the evil was multiplied on these frames.

In a certain mill some time ago the sizings were varying badly. There didn't seem to be any particular reason for this variation until the humidity reports for two or three weeks previous were examined. That was all that was required. I kept a close watch by reading the hygrodeiks four times daily, personally, and within a day or two the sizings were back to normal, and the third hands had extra time for something else. I ran as many as fourteen grades and hanks at one time in that room and went for weeks without changing a draft gear on the speeders. We kept the weights right on the drawing frames, by sizing twice daily, and making changes at this process where necessary.

In another instance where I was troubled with sizing variation I watched the drawing frame fixer as he seemed to have quite a lot of spare time on his hands. He was reporting draft gears changed that he had not touched. A new third hand straightened out the trouble in this case.

To get back to the production question, the oil can is a wonderful ally in keeping things booming. If one is fortunate enough to get a good oiler, don't be afraid to give him a little extra to hang onto him. He will save his wages a dozen times over by the end of the year. You will also have very little trouble with fires, if things are kept properly oiled.

In order to keep up the production a man must be on the alert all the time to find out just where the leaks are. The best job in the country won't run itself. There is always something that can be improved, even in the most successful card room. Looking for improvements doesn't mean that the head of the department must go around with a chip on his shoulder looking for trouble. When something is found that isn't just as it should be, don't start bawling somebody out for it, but give instructions to have it corrected. It is on the second offense that you are privileged to start showing who's boss around the place. In a small mill the overseer should take his own hanks, and the second hand should take care of that important duty in a large plant. Those tenders who aren't coming up to the average should be spoken to on the subject. Ask them where the trouble is and don't take any lame excuses. Put it up to them in such a manner that they will be convinced that it is to their own benefit to turn off as many hanks as they possibly can. The poor tenders, together with those who don't seem to care much one way or the other, should be eliminated by a gradual weeding out process.

Rolls should be kept in good condition if the most is to be gotten out of a frame. Bad rolls cause an excessive amount of waste due to roller laps, broken ends and a consequent loss in the production. This is especially emphasized during damp weather.

Before rolls are sent to the roller shop to be recovered, they should be slashed with a knife, care being exercised to cut the cloth, otherwise the roller coverer is apt to use the old cloth, putting a new cot on over the old felt. A soft roll will most likely be the result. The roll will also be more liable to flute and groove.

Keep belts at a proper tension and have them cleaned and dressed once a week. Use double belting of good quality if you want to save money and get the most out of your machinery.

A few spare parts such as bolsters, bobbin gears, pressers, skewers and other things commonly needed, should be kept on hand always for immediate replacements. It is surprising how such supplies as these are neglected in many mills.

Don't forget, the place for roving trucks is in the card room, swept out and standing on end, ready for a doff. They aren't intended to be kept in the spinning room as storage vaults for full roving. If the spinner cannot empty them as fast as they are sent up, pack the roving away.

It is a good idea to paint the roving trucks white on the inside. They will be kept cleaner. White paint seems to have a good effect on the help. I don't know just how to explain it. That will have to be diagnosed by a psychologist. (Ain't that a hot one, Old Timer?)

Speaking of roving trucks reminds us of doffing time.

What is a Vat Color?

ALL dyestuffs designated "vat" are fixed upon the fiber in the reduced state and are fast to washing and light

BUT

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38 Natoma Street

The tender should have an empty truck for the full doff ready to use as soon as the frame has knocked off. She should also have a truck of empty bobbins all cleaned and picked over ready for use.

Speeder tenders should be paired up to assist each other at doffing time and to attend to both pairs of frames at such times as it is necessary for one or the other to leave her work for a few moments. This rule should be particulaly stressed at washing-up time.

As a rule the girls used as doffers aren't very carefully picked. They are paid very little and it is pretty hard holding a good steady worker as a doffer. My view on the matter is that we are far better off to use one or two doffers less and pay those left enough to keep them interested in the work.

Good doffers are especially valuable at such times as when we are required to do a large amount of changing over. Capable doffers will save several thousand pounds production per year in a good sized speeder room in two ways: By changing over a frame in good time, and making very little waste in the changing. Also, much time will be saved and production increased, by getting each frame started up in good time at each doff.

Most carders know just how difficult it is to keep doffers busy when there is something to do. A speeder tender will call the doffers and the chances are they will beat a retreat to the sink or duck into the back alley, until the speeder tender has almost complete doffing alone. After a time the tenders get tired of hunting out the doffers, and let them get by without doing very much work.

A lot of this can be avoided by getting after the speeder tender for doffing alone. Tell her it is up to her to get the doffers, unless they all happen to be busy. Make the tenders understand they are to report any doffer who does not answer their summons. In short, put the responsibility for a quick doff squarely on the shoulders of the tender. The result will be surprising.

Plenty of production is lost within the last thirty minutes to quitting time. In these last few minutes, those tenders who don't seem to care how much they make will stop a frame, rather than doff it just before going home. The result is that several frames will not only be stopped at night, but the following morning all those frames will be doffing at once.

Referring again to the question of waste, there is one point I wish to call attention to in particular. Furnish each speeder with a box, not too generous in size, and have this divided into two compartments, marked " Sweepings" on one section, and "Clean Waste" on the other.

This is for the benefit of those who use roving cans for waste on the speeders. The point is that if too large a receptacle is furnished for waste, then plenty of waste will be made as some tenders seem to think that they are expected to fill the cans daily.

The overseer should walk around at such times as opportunity presents itself and watch the tenders, to get an idea of just what they are cutting off the bobbins after creeling. Doffers should not be allowed to cut pieces off for a speeder tender.

While we must be continually pushing for a high production, yet this should not be attained at the expense of good quality. Of course, how fussy we are depends on what we are making.

Can You Use these Experienced Weavers
at No Cost to You?
They have assisted many an Overseer in cutting his costs—in producing a better fabric—in overcoming certain troubles—at no cost.
They are the "Field Men" of this company—employed to assist you gentlemen in your harness difficulties and without obligation to you.
Shall we have one drop in the next time he is in your vicinity?
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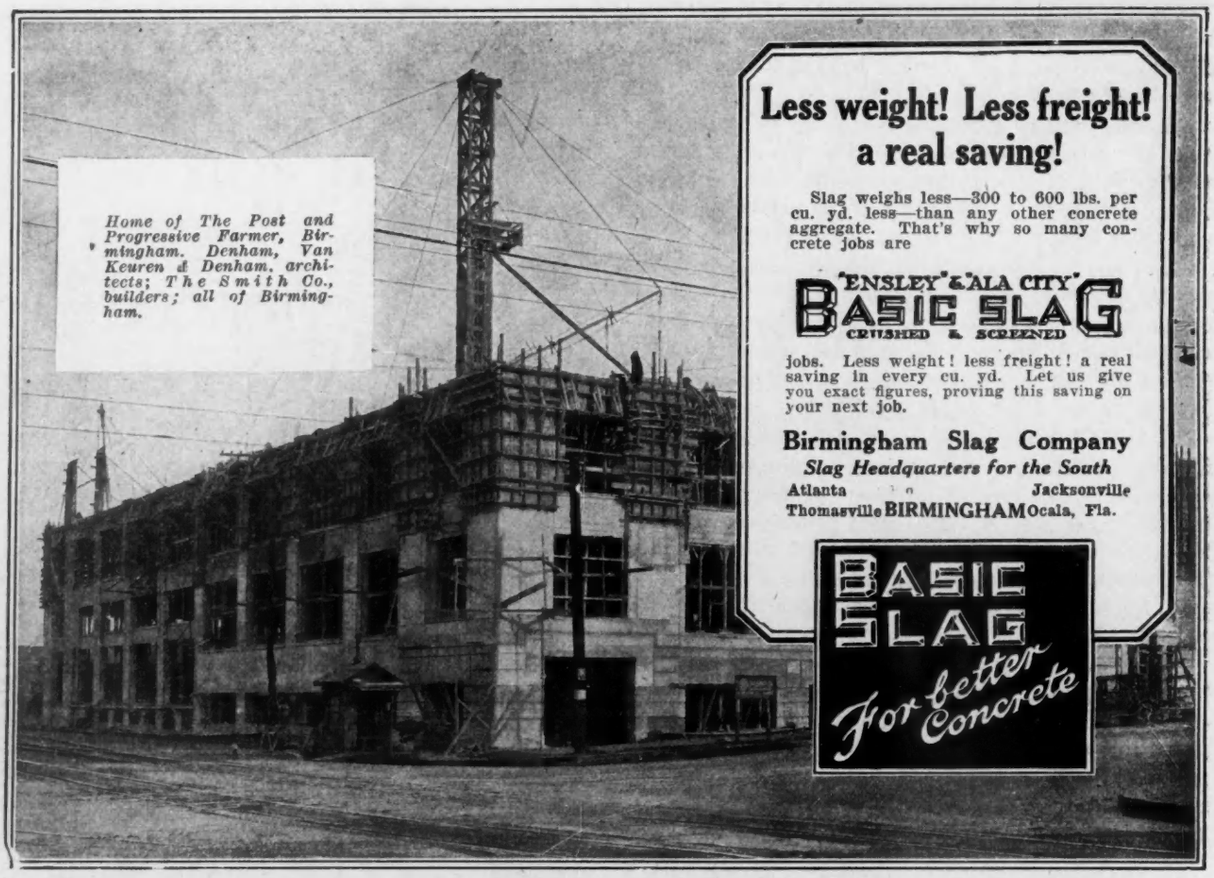
Home of The Post and Progressive Farmer, Birmingham. Denham, Van Keuren & Denham, architects; The Smith Co., builders; all of Birmingham.
Less weight! Less freight! a real saving!
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All possible means should be used to prevent doubles and singles. Also dirty piecings, hard ends, bunches and any other defects there might be. The frame tenders should try to keep their hands clean and dry as this will do much to eliminate hard ends when piecing up.

Every morning the bad work should be laid out on the floor and inspected and checked off by the second hand or overseer, depending on the size of the mill. Special effort should be made to discourage avoidable defects, such as doubles, singles, hard ends and dirty piecings. Bunches are not always the fault of the operatives. All the above with the exception of bunches are the direct result of deliberate neglect and should not be tolerated.

I was at one time troubled with a very large number of bunches. I found that these were caused in great measure by the underclearers on the intermediates. I had them all removed, and noticed a very appreciable decrease in short order.

At about the same time I noticed that we were having a lot of rolls go bad on the intermediates. The leather would split and peel off. Before I went there they had been accustomed to varnishing the intermediate and slubber rolls. I found it was the varnish they were using that was causing the leather to peel. I have never been in favor of varnishing speeder rolls, so I didn't bother to find out how they mixed their varnish, but just gave orders to throw it out. There was no more roller trouble after that.

But to get back to where we started from, several small receptacles should be fastened to the front creel and kept filled with whiting, so that the tender can dip her finger tip into this when piecing up an end. Black piecings can be practically eliminated in this manner.

Thousands of bunches and slugs can be made in the work by improper sweeping up in the speeder alley. The broom should not be "swished," as one would do when sweeping a rug, but should be pushed down the alley, allowing the sweepings to collect in front of the broom, as it progresses to the end of the alley.

It is important to produce at the lowest possible cost per pound. This does not necessarily mean low wages. Many a mill paying good wages is producing cheaper than similar mills that do not pay as well. It means cut out all unnecessary labor. Lay off all non-productive labor so that three aren't on the pay roll doing the work that two could do comfortably.

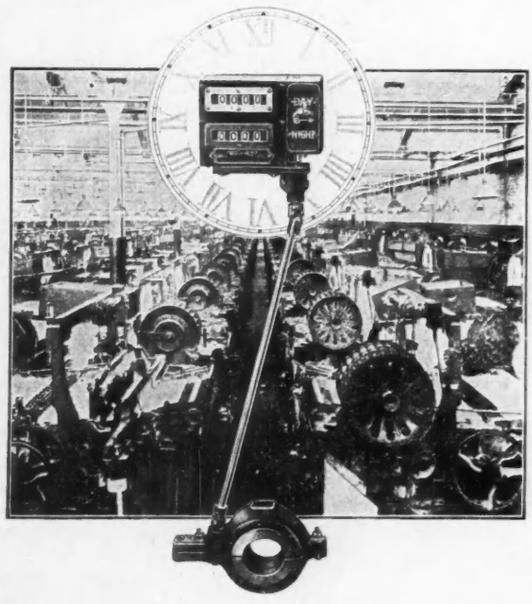
Give the odd jobs such as picking up the waste, empty bobbins, etc., to aged men, who are in need of the employment, and cannot do work requiring heavy exertion, in preference to having boys around neglecting the work when you turn your back.

Don't lose track of the fact that your supplies have a lot to do with your cost per pound. They are an expensive item in the overhead cost of the mill and should always be in charge of one man who feels a proper amount of responsibility in the proper distribution of them.

Regarding machinery up-keep, it should suffice to say that cleaning, oiling and prompt replacement of worn parts, and periodical overhauling will keep things as they should be in this respect.

While this complete article has been founded on simple little points for the most part, still they constitute the difference between a job that is *being run*, and one that is *being run down*.

CONTRIBUTOR No. 686.



Where to Look for More Running-Time

You look on the dial of a Veeder-Root Counter for one main thing:—you are looking for *more picks* per day. You want to see a loom average more running-time.

The fact that you *look* for higher production will lead the weaver to see that you get it. For his record is there to be watched.

Veeder-Root Textile Counters can be applied to every machine and work-situation in a mill. They will help you to solve any production-problem or labor-problem. Write for Textile Counter booklet, or ask for a trial of the Counters.

Veeder-Root INCORPORATED HARTFORD, CONN.

General Southern Representative:
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WASHBURN WOOD TOP ROLLS

Washburn Wood Top Rolls will enable you to materially increase roving drafts within the limits imposed by consideration of quality. On all counts, standard or longdraft, there is no re-setting when changing staple or numbers. Send for special information on this item NOW.

Standard sizes for ball warps and cord fabric shipments carried in stock. Special sizes in your choice of any suitable wood will be made to order and shipped promptly. For further information write for Price Bulletin.

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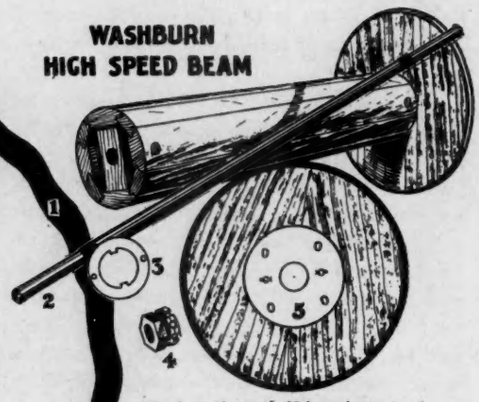
Washburn products and the interest they created at the show, is due in no small measure to our policy of building mill equipment to millmen's suggestions. From YOUR side of the picture. In addition to this, the Washburn organization has traveled side by side with mill progress for 50 years and has, quite naturally, absorbed a good deal of information applicable to present-day needs in mill practice.

To those who could not visit the show we would like to send our literature on either specific items or the entire line. Or, to all, we extend the services of our engineering staff—gratis.

WASHBURN

224-234 No. WATER STREET
NEW BEDFORD, MASS.

WASHBURN HIGH SPEED BEAM



The beam that made high-speed warping absolutely free from beam troubles. Note the construction. 8 interlocked staves supported on strut-brace hubs. Patented clutch and nut-locking device, producing coincidental locking of all parts by merely assembling the beam. Light in weight, of utmost strength, always in balance—and low cost. Did you see the new tensioning device for heads?

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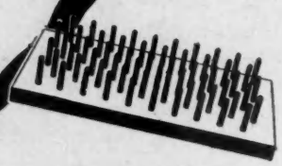

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Picking a Lease for Re-Sizing Warps.

EDITOR COTTON:

In a recent issue, "CONTRIBUTOR No. 4052" asked how to pick a lease on a 5,000-end warp, so as to be able to re-size from the loom beam, the warp being soft and practically impossible to run.

In answer I will say it is a job at the best to re-size warps, but I suggest taking a long needle or flat wire (about six inches long) and having an eye for string, then getting all the ends tight. Then stand back of the beam and pick up every other end, then put in rod in place of the string and run slow. If a double lease is desired, take a stiff wire bent like an enlarged hair-pin, with about three inches between the points, using both points to pick up, and pick up the ends the same as if weaving plain cloth, as the wire gets full insert rods or strings withdraw the wire, and start again. I advise making two warps out of each one, as usually it is possible to get about half off before the trouble of crossing thread starts.

C.B. (ALA.)

Qualifications of a Leader.

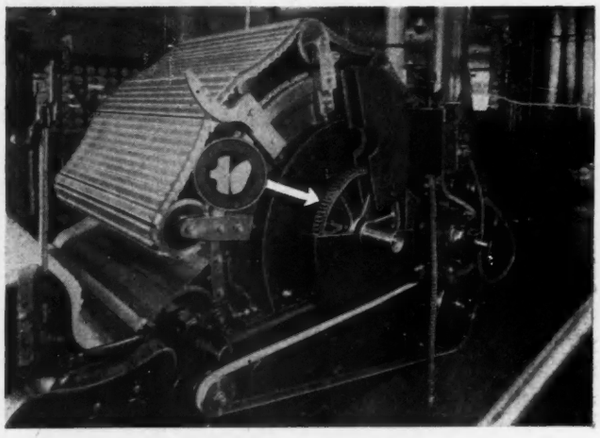
EDITOR COTTON:

I have just been reading "The Responsibilities of an Overseer", "Old Timer", "Selecting the Man for the Job" and "Running Your Present Job" appearing in the March issue of COTTON. If the readers of COTTON are not reading all of these articles they cannot be getting in full measure what is coming to them from COTTON.

I am going to offer a few thoughts along the lines of these articles, but will not begin by offering any apologies for my inefficiency and crudeness in handling the subject. I have long since learned that a man has to stand on his own hind legs; in other words, be his own self and not be afraid of his game, for no matter what one does; it must be remembered that some folks won't like it. However, other folks will. Charles Carpenter says: "One of the penalties of entering the ring is being hit" and "If you can't stand to be hit, then stay down with the crowd."

This word courtesy! Now that's a fine word and covers a lot of ground. It means politeness, combined with kindness. It seems that it is rather pressing on some men to be courteous, and some think one should be courteous to the help in order that they might do more for you. I would call this false courtesy, and I don't believe the man who practices courtesy in this way reaps the full benefit from it. Why, doggone it, I, myself, am the guy that gets the pleasure of my courtesy. Practice genuine courtesy and you have the whole thing in a nut shell—loyalty, cooperation, production, upkeep of machinery, economy of supplies, quality of production, and everything you need will come to you through genuine courtesy. I mean by this, courtesy extended because you like to be courteous; because it makes you feel better, and not just to intrigue someone into doing something they would not otherwise do.

Don't forget that the help gets a line on you, just the same as you do on them. If you are not honest to them through your courtesy, they will soon find it out, and you, yourself, are the only guy you are fooling. They will say you are two-faced, and I guess that's about right, and you ought not to kick about being called what you are. In this case the help will work for you because they have to



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work somewhere, and you are not going to get the free and genuine cooperation from everyone that you should have, and would have if you were honest enough with yourself to practice true courtesy.

Some men think if they have a bad night—a little headache, and don't feel good—they have to top it off with a grouch, and they think it is impossible to be courteous under these conditions. Well, I guess they are right, for courteousness and grouchiness are the direct opposites of one another and will not abide together; either one will chase the other away, and you are to decide which is going to stay. Next time you think you are going to have a grouch and scare (?) everyone into getting down to business and respecting you, just go in and hang up your coat and hat, look around with a smile, roll up your sleeves and say "Good morning Jim! How are you this morning? You look like one hundred per cent today." It will only take a few stalls like this for your courtesy to have your grouch chased away, and you too, will feel one hundred per cent better.

Did you know that when you come on your job with a grouch everyone makes fun of you to your back? Somebody will come along and say "Well, the old man had another bad night last night. Better lay off of him today." Another will say "I'll bet the boss has been riding him about something, and I don't care if he rides him plumb out of town; this dump would be a lot better off without him anyway."

Some overseers will take advantage of a grouch to ball somebody out, and if they can't make it stick then they will apologize in a round-a-bout way and remark that they possibly said something they should not have said, and then proceed to tell what a bad night they had. Now let me tell you, if you keep this up you are going to tie into somebody else one of these mornings who has also had a bad night, and when you do, then by your own argument, you can't have any kick coming for anything he does to you. Just remember that you are not the only guy who can come on the job feeling bad.

Now another bad habit some men have is, when some one or more of the help does something they should not do, or don't do something they should do, they send the second hand around to tell all the help to do, or not do, this thing. This creates a lot of ill feeling every time it is done. Suppose your wife asks you to go into her garden (though men like this seldom have gardens) and get a few weeds out for her. You would not take the lawn mower and cut down everything, would you? Certainly not. Still, this is the same principle you apply to running your job. I believe in going after the individual. It takes less time and the results are better, and it takes a better man to do it. Won't you be a better man next time?

Some men believe, and practice it, that it is a good policy to fire someone every once in a while, just to show who is boss. Some overseers today will tell you that one thing the matter with cotton mills today is too many young squirts for superintendents. Do you know the reason why there are so many young superintendents? The reason is this. There are too many old overseers. You see it boils down this way. Many old overseers are just "hang-ons". They failed to avail themselves of their opportunities. They didn't "think". They didn't conduct themselves in a way conducive to promotion. Consequently, the young men are passing them up, just like the 1928 Ford is passing up the 1925 model Ford. All this is said with due regard to all old overseers. They have all had a hard time and deserve due credit according to their own measure. Some overseers won't like this, but others will. If you happen to be a man who can't eat pie, don't envy the man who can. I think there is a chance for every man who goes after promotion. Remember the saying "If a man makes a better mouse trap than his neighbors, even though he lives in a dense forest, the world will make a beaten path to his door."

For the encouragement of some of the men who are trying to climb up, I want to tell you of a young man I know of. He always ran his job; he was a clean moral man and was loyal to everyone, but he learned too much about his job to suit some people. Time rolled around, and it was finally necessary for him to get out. Letters went out to more than one mill in the state trying to hold him down, and they did hold him down for a while. I had a letter from him once in which he said, "I'm on a doff box now. They have me down, but I'm not out." Later he was promoted to second hand, and still later, another mill hired him as boss spinner, and then another mill hired him for assistant superintendent. He has already passed up some of the men who were knocking him, and he is not through yet.

You don't have to get on a housetop and tell the world of your abilities. Someone is going to find you if you are running your job.

I know of one man, a superintendent today, who once was fixing looms and was down under a loom with his feet sticking out in the alley. The superintendent found him and gave his leg a pull, got him out from under the loom and said "Jim, I want you to take charge of the weave room." This man was running his job. In my own case, the first overseer's job I had was in a mill in which I had never worked. A letter was bootlegged into where I was working, which said if I would be interested in the job to apply at once. They are just going to find you if you run your job, be a man, and "think".

Now, "Old Timer" admits that even he can't make you "think", and I want to add a little rhyme I have read somewhere:

"You can lead a horse to water,
"But you cannot make him drink.
"You can stuff people with knowledge,
"But you cannot make them think."

This thinking business is up to you. It is up to each individual, and we ought to do some constructive thinking every day. Watch the other fellow's mistakes, and then don't make the same mistakes yourself. This "man for the job" business is another thing that requires serious thinking.

I believe it was Mr. Carnegie who attributed his financial success to being able to keep about him men who knew more than he did.

Now the fixer who has been on the job a number of years knows more about running the job than the student with a few months experience. If the fixer has "run his job" and been a man of good character who can command respect, why then he is the man, without any argument. On the other hand, if he has not shown any further capabilities than just fixing, then consider the student. He has a number of things in his favor. If you think he is capable

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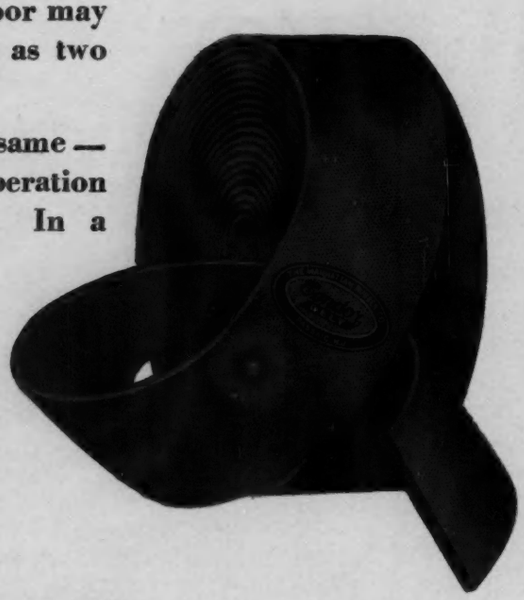

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of keeping about him men who know more than he does, he will make good.

I'm not hard on the college men. It's a fine thing to take textile training, but you all know that a man has just got to have something besides his college education to make a success, and a fixer has to have something besides fixing to make a success. If you don't believe it, try it. One trial will convince you. So there you are. Think that out for yourself when you have a chance to promote a man. You should know what kind of a man you have to promote. If you don't know what kind of a man you have, then you are short a few thinks. Consequently, you have not been running your job 100 per cent; therefore, not 100 per cent in line for promotion yourself. I don't think an overseer or fixer should have any secrets about fixing their machines. It has never hurt me to tell what I know (Of course the reason might be that I don't know enough for it to hurt). Just the same, I am glad at any time to help a fixer out on anything I can. But an overseer must not boast of his abilities; he must not be a big "I"; he should say "we" at every opportunity, and should not unload everything on his second hand. It's a shame the way some overseers will treat their second hands; they will actually take credit for everything good and give the second hand credit for everything bad. That isn't running your job. Always give credit where it is due. If a sweeper has done a good job of sweeping, tell him so. Some overseers are afraid to praise the help for anything. They want to keep everybody scared all the time. This is wrong. If the help be uncertain as to whether or not you are satisfied with their work, they are nervous about it. They haven't the confidence in themselves that they should have. The majority will take great pride in pleasing you if you show your genuine appreciation of their efforts.

This is getting around to courtesy again, and that's where I started. One good trait any man should have, that I am not sure of myself, and that is, knowing when you have said enough. I don't know how much over my limit I have gone, or what the editor will do with this, so I am just going to sneak out now when I say:

Practice courtesy and don't have anything to do with a grouch. Be a friend to mankind. Live so you are able to look any man in the eye and tell him to go to thunder!

JACK (TEXAS).

Mis-Picks and Shuttle Marks on the Change.

EDITOR COTTON:

In the September issue, "R. C. (GA.)" stated he was having difficulty with mis-picks or shuttle marks coming up on the change, making a 2.85-yard 76 x 48 three-leaf fabric on 30-inch E Model Draper looms.

There are a number of things which might be causing this difficulty, and among them are: Lost motion in the battery; picker stick too long; rough shuttle eyes; rough shuttle box; weak filling; rough tip on bobbin; etc. It might be that the bobbin is rolling in the battery, and if this is the trouble, the remedy of course, is to tighten up on the battery disk.

Or, the rocker shaft might be worn so much that it would cause the transferrer to go far down enough to snap the filling off, or it could be that the transferrer fork is too sharp and is cutting the filling.

CONTRIBUTOR NO. 4077.

Preventing Pickers from Sucking Back Motes.

EDITOR COTTON:

I notice in a recent number that "CONTRIBUTOR NO. 4019" wants a remedy for preventing his old style pickers from sucking motes back into the good stock. First, I would suggest that he get his fan speed correct. This is very easily done by lowering the fan speed so that the cotton will be drawn to the screen evenly. This will prevent the motes from being drawn into the good stock.

If this is not practicable, he might try placing a ten-inch board at the bottom of the beater; this should be placed six grid bars away from the feed roll, then the motes will be a safe distance away, so that the air will not suck them back in. This board can be applied by having two holes bored with an electric drill on each side of the machine, using wood screws to hold the plank in a vertical position. Practically all of the motes are knocked out by the first three grid bars.

I would be glad to know if this is of any help to your contributor.

BOB (S.C.)

Carding-Spinning Discussion at Huntsville

(*Continued from page* 21.)

long nose for that purpose." He pointed out that on the long nose the nose is 1¾-inch from the top, and that the distance from the point of contact to the feed plate is about two inches. He pointed out that the feed of the lap must be taken into consideration; if set too close it will damage the fibers. He added that on a 16-ounce lap a setting to a 6 gauge might make the yarn weaker, while the same setting on an 11-ounce lap would produce a strong sliver.

"The setting of the licker-in is very important," declared W. L. Denham, superintendent, Dallas Mfg. Co., Huntsville, Ala. "Two or three years ago we had a lot of weak yarn, caused probably by the licker-in, but not by the setting. We found they were in bad condition, and had them re-wound and got a better combing action. If you set them too far away you will get a weaker yarn. It is just a matter of experience to determine what will make the best yarn. We use a better cotton than most of the mills around here—half Good Middling and half Strict Middling—and the setting of the licker-in to the feed plate in our mill probably would not apply in the other mills. I think the licker-in setting is very important; that is where we start the work in through the card.

"Another thing we found was in the setting of the screen under the licker-in. We found that we could not set the screens at the same time like we wanted them, and we had to make a gauge or template to go by, of the same diameter as the licker-in. We put that in there without the licker-in and get the screen set up to it, and when we put the licker-in in it runs exactly right. I think the screen setting has something to do with where you should set the licker-in. Without the right combing action there you will not get the right yarn. The grade and character of the cotton also have something to do with it."

Sets Licker-In to a 29.

Mr. Glass, overseer of carding at Shawmut, caused much surprise by stating that he sets his licker-in to a 29 gauge. "Mr. Glass is correct," explained Mr. Murphy,

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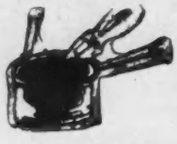

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DISCUSSION ON SPINNING

At this point the chairman turned the discussion to the spinning room. The first step was to secure an outline of the different practices with regard to spindle and roll speeds, twist, hank roving, length of bobbin, etc., in making different numbers of yarn, and the reports made in response to this were as follows:

C. E. Davis, overseer spinning, Pepperell Mfg. Co., Opelika, Ala.—13⅓s to 22s warp; 10½s to 27s filling. 15/16-inch cotton, 2.00-hank roving for the 13s; rolls set "as close as we can get them"; front roll speed, 141 r.p.m., on 13⅓s; 2-inch ring; 3-inch gauge with separators; filling wind on warp; ⅝ x 9-inch bobbin; 8-inch traverse; 8,000 r.p.m. spindle speed.

W. J. Carroll, overseer spinning, Eva Jane Mill, Sylacauga, Ala.—21s warp; ⅞-inch cotton; 3.00 hank single roving; 4.50 twist multiple; rolls set "just as close as we can get them"; front roll speed, 144 r.p.m.; 1⅞-inch ring; 3½-inch gauge without separators; filling wind; 7-inch traverse; ⅝ x 8-inch bobbin; 7,900 r.p.m. spindle speed; 1inch front roll.

A. K. Davis—23s warp; 1 1/16-inch cotton; 4.50-hank roving; rolls set 1⅛-inch; 1-inch front roll; front roll speed, 137 r.p.m.; twist multiple, 4.50; 1¾-inch ring; 2¾-inch gauge with separators; filling wind; 7½-inch traverse; 8-inch bobbin; 8,900 r.p.m. spindle speed.

Arthur Pyle, overseer spinning, Avondale Mills, Birmingham, Ala.—40s filling; ⅞inch cotton; 6.67-hank roving; 1-inch setting of front roll; front roll speed, 102 on 40s; twist multiple, 4.75; 1¼-inch ring; 3-inch gauge; filling wind; 6½-inch traverse; 1-inch front roll; 8,400 r.p.m. spindle speed.

R. E. Schrimsher, overseer spinning and spooling, Dallas Mfg. Co., Huntsville, Ala.—22s warp yarn; ⅞-inch Good Middling cotton; 3.00-hank roving; 1-inch front roll; front roll speed, 115 r.p.m.; 4.75 twist multiple; 1¾-inch ring; 2¾-inch gauge with separators; warp wind; ⅝ x 8-inch bobbin; 7-inch traverse; 7,500 r.p.m. front roll speed. (Mr. Denham, superintendent, explained this mill runs warp wind because the Barber-Colman high speed spooler is used).

R. A. Anderson, overseer spinning, Margaret Mill, Huntsville, Ala.—22s hosiery yarn; ⅞-inch cotton; 3.90-hank roving; rolls "set as close as we can get them"; front roll speed 135 r.p.m.; filling wind; 1-inch front roll.

V. O. Mims, overseer spinning, Avondale Mills, Sycamore, Ala.—22s hosiery yarn; 15/16-inch cotton; 3.30-hank roving double; rolls set "as close as we can get them"; front roll speed, 146 r.p.m.; filling wind; 1-inch front roll.

Oliver G. Murphy, superintendent, Shawmut Mill, Shawmut, Ala.—7s yarn; 1-inch cotton; 1.10-hank roving; rolls set 1¼-inch back, 1 1/16-inch front; front roll speed, 174 r.p.m.; warp wind; 7¼-inch traverse; 1-inch front roll; 4.50 twist multiple; 6,690 r.p.m. spindle speed.

V. W. Lovill, superintendent, Merrimack Mfg. Co., Huntsville, Ala.—29s yarn; 13/16-inch and 15/16-inch cotton; 4.90-hank roving; 4.75-twist multiple; rolls set "as close as we can get them"; front roll speed, 124 r.p.m.; 1 13/16-inch ring; No. 1 flange ring; 2¾-inch gauge with separators; warp wind; 9,000 r.p.m. spindle speed; 8-inch traverse; 6½-inch stroke; 7⅝-inch bobbin.

Ira E. Gunn, superintendent, Russco Mills, Alexander City, Ala.—31s yarn; ⅞-inch to 1-inch cotton; 6.00-hank roving; rolls closed; 5.25 twist multiple; front roll speed, 98 r.p.m.; 1¾-inch No. 2 flange; 3½-inch gauge; filling wind; 6¾-inch traverse; 8,900 r.p.m. spindle speed. (Mr. Gunn explained that he runs 15/16-inch cotton in Summer and ⅞-inch in Winter).

NO. 1 AND NO. 2 FLANGE RINGS.

The use of the No. 1 flange ring on spinning frames came up next. Mr. Ryckman said he is putting some on now; with the understanding that there is less friction on the traveler because a smaller circle traveler can be used. He said he finds it is an improvement with the proper traveler, declaring that it provides more ring area and a larger bobbin of yarn.

Mr. Lane, when called upon, stated that he uses the No. 1 on filling and the No. 2 on warp, and that on fine work he would change to the No. 1.

W.L. Denham described changing one frame from the No. 2 to the No. 1 on 22s. This was an old frame, built in 1891, with a 5½-inch traverse. He wanted to get a larger package, and stated that the No. 1 flange gives him about 25 minutes longer run to the doff on 22s. There is no difference in the breaking strength, appearance of the yarn, or the running of the frame. He pointed out that

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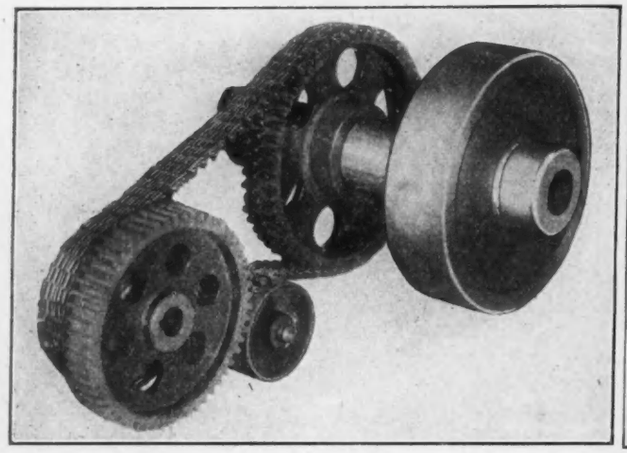
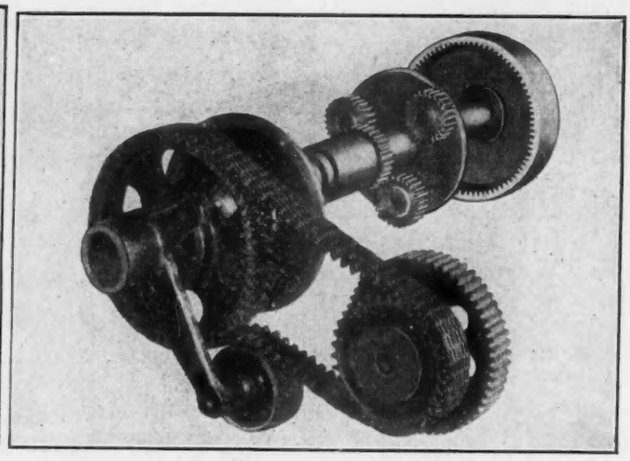


Compound Assembled With Chain Drive and Tightener-Pat. Pend.



Compound Unassembled Showing Details of Construction-Pat. Pend.

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it was necessary to change the traveler from a No. 2 traveler to a No. 3 traveler with a different circle.

Mr. Davis explained that on fine work the No. 1 flange is an advantage as it permits of a better stock in the traveler.

No. 1 and No. 2 Are of Same Diameter.

Mr. Rimmer stated that the No. 1 ring in reality has the same diameter; and that the advantage comes in the changed pull from the traveler to the bobbin.

O. G. Murphy brought out here that he uses a 4.50 twist multiple on his plied 7s yarn. He explained that "you get more fibers to the cross-section in yarn twisted with 4.50 than with 4.88, so when you put it in the cloth and break it you have more fibers to pull against than in the 4.88; you get your additional weight by the contraction of the twist in the 4.88."

Continuing, Mr. Murphy explained further that as a member of the cotton sub-committee of Committee D-13 of the American Society for Testing Materials, he is experimenting with a machine for breaking cotton fiber before being spun. He added that at a recent meeting of the committee, a prominent experimental farmer had told the group that the mills are not informing the experimental cotton growers as to what they need in the way of staple uniformity, etc., etc.

Square Point, Round Point, Double-Duty Travelers.

Mr. Carroll asked for discussion as to the square and round point travelers, as well as the double-duty traveler. He said he uses the square point for filling and the round point for warp. "On coarse filling the square point doesn't come unthreaded as much as the round point." It was brought out that in changing from one to the other, it must be taken into consideration that the ring would probably be worn to one type. Mr. Mims said he uses the square-point altogether; that on coarse numbers the round-point will come unthreaded when the frame stops.

Mr. Crouch, of Merrimack, said he uses the square point on coarse work and the round point on fine work. On 16s and coarser he said he uses the double-duty traveler.

"I have one box of the double-duty," said Mr. Gunn. "I find they last a little longer. The narrow place in the groove will let the temper go to the points and make it a little harder."

"I tried some of them," said Mr. Ryckman, "in fact I am running some of them now. The salesman left the impression that they would last twice as long. It is simply a traveler with a little slot in it and they told me why it drives the temper to the point. We have been using them for two months on about 24 frames, and we do get some longer life out of them." He continued, saying that it is a question of local conditions, etc., as to how long the travelers can be run. He said he makes it a practice of changing travelers once every three weeks, and that he has some of the double-duty that have run for six weeks.

Mr. Crouch said on 7s the double-duty has lasted ten weeks; but that "on the finer numbers we do not use the gravity, as it would fly off."

C. E. Davis reported that where his travelers ordinarily run two or three weeks, depending upon weather conditions, he has some double-duty travelers that have been running for four weeks.

Long Draft Spinning.

At this point, W. L. Denham, superintendent, Dallas Mfg. Co., Huntsville, Ala., explained his experience with a long-draft system of spinning. He said he uses a 1.50-hank intermediate roving, drafting 15.64 on the spinning frame, and that he finds he gets about five or six pounds better break. There are advantages and disadvantages, he states; there is considerably more lint and more cleaning to do, and the spinners cannot take care of as many sides. Although a better break is secured, the yarn is not as clean. He said the work runs just as good; that at first the uncovered leather roll representing the fourth roll would cause the end to come down, but that the shops are changing this to a wooden roll and believe this will eliminate the trouble. Mr. Murphy reported that a friend who had a system of long draft running in the same room with regular type spinning sometimes experiences difficulty with the long-draft running properly.

Mr. Denham pointed out that using a 1.50-hank intermediate roving on the long-draft, it runs for 55 hours, and that when the creel is filled on Monday morning it is not necessary to replenish until the beginning of the next week; whereas he only got a 17-hour run when using a 7.43-draft. He expressed the opinion that while in equipping a new mill the long-draft would pay, that to change over an existing plant would make the investment interest higher than the wage saving in the card room.

V. O. Mims verified Mr. Denham's statements as to the extra amount of cleaning; adding that his fourth roll is covered, and that this gives more satisfaction. He is on 22s hosiery yarn.

Mr. Crouch said he is making 43s filling on old 1902 Lowell frames, out of 5.50-hank double roving, "and that's a pretty nice draft itself."

At this point there was a brief discussion of overhauling methods, it seeming to be the general practice to overhaul spinning frames thoroughly once a year. No one present had experience with re-fluted steel rolls, it developed when the question was asked. Several men suggested "swapping sides" with rollers after they had been in use for a number of years.

THE MULTIPLE SYSTEM IN SPINNING

The concluding discussion was based upon the multiple system in the spinning rooms—or using special hands for cleaning. M. V. Miller, overseer of spinning, Buck Creek Cotton Mills, Siluria, Ala., made a report on this, stating that they had changed over about three months ago. His spinners now only put up ends, special hands being used for the cleaning. He increased the number of sides to the spinner from 8 to 12, and reduced his spinning cost about nine per cent, while the spinners also make a little more. The results, he said, are very good, and they experienced no trouble in changing over. He makes 13s to 28s. His frames have 136 spindles to the side, and he has 20,000 spindles, which are cleaned by three clean-up hands, who were formerly "average" spinners. Two of them look after 25 frames each, and one takes care of the remaining 24 frames.

"Can you keep as clean a spinning room with the multiple system?" someone asked. Mr. Miller replied that it is in reality easier to do this, because the section man has only three clean-up hands to look after. He runs his roving down to the last layer and the spinners twist this off, he said in response to a question. Mr. Murphy asked if it wouldn't allow him to spread out still more if he had someone else do this work, and he said that it would seem logical. He added that his clean-up hands do not wipe out the front sides or thread boards.

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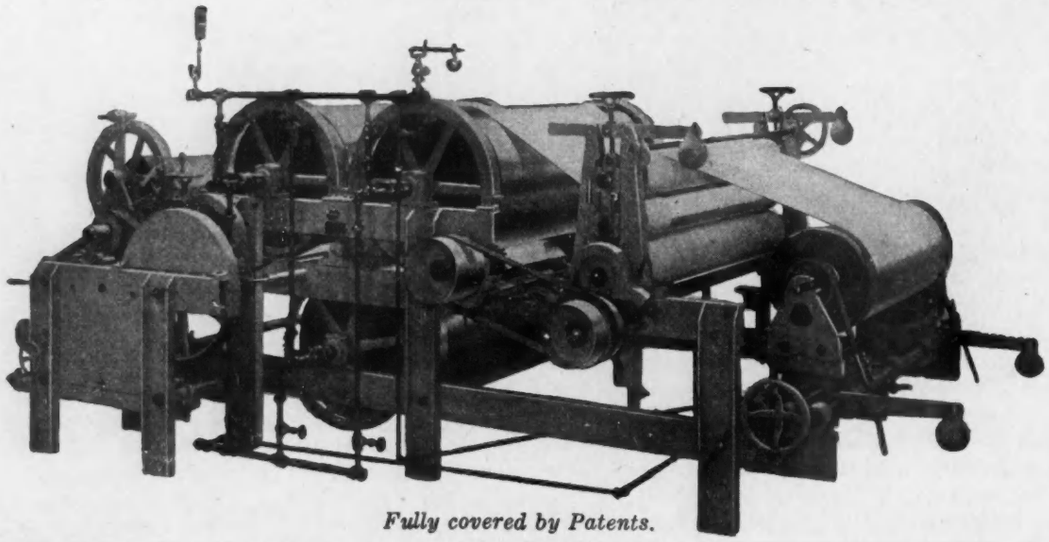

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Mr. Lane asked about the number of ends down per thousand spindles, pointing out that this is necessary information in installing the labor extension system, but no one seemed to have information on it except A. K. Davis, who stated that around one per cent would be a good average.

Mr. Miller said he had made a test as to the clearer waste, and did not find this any greater on the multiple system.

"We tried the multiple system, but couldn't get any advantage from it," said Mr. Carroll. "We have a cleaning attachment that keeps the roving, front sides and back sides, etc., clean, and that doesn't leave much cleaning for the spinner to do."

"My spinners run eight sides on 6s and 7s," said Mr. Murphy. "I made a thorough test of the multiple system, but on yarns from 14s down, I could not see much opportunity. The roving runs out so rapidly, and there is so much cleaning to do."

Mr. Miller reported that at the Pacific Mills at Lyman, S. C., they were running 28 sides to the spinner under the multiple system. Mr. Murphy said that at Pelzer, S. C., he understood they were using a spinner on 28 sides. W. C. Ryckman declared that when he visited Lyman some four years ago they had a spinner to 21 sides on 20s. He said they cleaned the roving off of the bobbins by holding the bobbin in front of an air jet and blowing it off. Mr. Murphy said the same system was in use at Pelzer.

This practically concluded the discussion and the meeting was adjourned. The date and place of the Spring meeting, to be devoted to slashing and weaving, will be determined by the executive committee of the division.

Portable Electric Tools in the Mill.

EDITOR COTTON:

You recently carried an article on the use of electric drills. The writer has often thought that the use of portable electrical tools was not fully realized by the cotton mills. Allow me to add a few suggestions in this connection.

Many tools may be used in the chuck of the average electric drill, other than drills. A screw driver can be made and used in the electric drill by taking an old screw driver with round shank and sawing off the handle so that the chuck can grip the tool. This will come in very handy in the carpenter shop. Also a ream can be used under certain conditions in an electric drill and considerable time saved in reaming out small holes. There is on the market a device which can be clamped in the chuck and the drill used for grinding and buffing.

One thing is generally overlooked by the average user of portable electrical tools. This is the proper care of such tools. Due to the fact that a portable electric drill is not used continuously, the lubrication of its moving parts is often overlooked. The gears should be occasionally opened and cleaned, then filled with a good gear grease. The bearings should be oiled often with a good light oil. The commutator should be kept clean and free from grease. It may be cleaned by a hard finish canvas. If there are rough spots on it, resulting in bad commutation, the armature or rotor should be taken out and turned smooth in a lathe and dressed with fine emery.

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Kinky Filling on Shade Cloth.

EDITOR COTTON:

I notice "T.S.(S.C.)", in his reply to "J.N.(S.C." in the March issue, on "Kinky Filling on Shade Cloth," lays some stress on the stroke of the filling on the quills. We ran for some 18 months on a stroke of 1½-inch, where he has recommended a stroke of 1 3/4-inch, and during all this time we were not bothered enough to notice it. It's hard to get a spinner to run a stroke any longer than he must, for it lowers his production and causes more doffing, more laying up filling, more threading of the loom on the batteries, more changing of the filling in the shuttles and chances of shuttle marks in the cloth.

We have, I'm afraid, had the wrong conception of filling and its welfare, and concentrated all our efforts on the warps, giving the weaver "down the country" for all that might happen on the filling end of the cloth. Check up on the filling breaks on loom stoppages and it will be found that there are about 2½ to 3 filling breaks to one of the warp.

There is not much use to keep on giving a fellow a "raking over" about those things when we can make tests and be governed accordingly. Recent surveys, show that the greatest thing which causes kinky filling in the cloth is from one of the following causes; unevenness, or twist calculations not correctly carried out; the filling calculated by a certain twist multiple and the usual variation of extra twist to take the break in the wet and dry weather, etc. A small variation from the standard number of the yarn will not make so much difference, but if it is allowed to run too heavy, then it will kink, or if allowed to get too dry or is put in the looms too soon after it's run in the spinning, it will kink. Conditioning is a fine thing if you keep the yarn moving in the weave room, but if allowed to lay over too long it will dry out and swell up, and then when being transferred to the shuttle, being soft, it is likely to break, or to "rope off" as it is being run out in the shuttle. A lot of filling is overlooked in the filling boxes. There is no doubt but that a lot of this filling stays in these boxes for weeks at a time, and when it is taken out, being so dry, it will not run off smoothly. It will rope and break, and the weaver is at a loss to know where it comes from and claims that something is wrong with his filling(when as a matter of fact, it's his own fault, in that he does not keep his filling rotated and his battery boxes cleaned out often enough to keep his filling from drying out in the bottom of these boxes.

Of course there are numerous causes for the prominence of kinky filling in cloth, for instance, in the way the shuttle is boxed on the loom, and in other ways which go with the friction in the shuttles. If we could control the ballooning of the filling in the shuttles, there would be little, if any, kinky filling, and the usual thing that makes the greatest ballooning is dry filling, the boxing and uneven or somewhat heavier filling than the twist is intended for.

A few days ago the writer saw a very simple way of conditioning filling, and the outfit did not cost very much. It was simply a boarded box, air tight (practically) and a 1/2-inch low pressure steam line run into one end of the box. The filling would be run into this box and the steam turned on for about three minutes, then turned off and the filling allowed to stay in there for some ten to fifteen minutes, then it was taken to the loom and laid in the boxes. When put in the looms it laid down pretty and made the face of the cloth look smooth, with absolutely no kinky filling. This box was made so that it would have about two feet clearance on all sides of the filling box when run in. The low pressure provided a vapor so there was no water drip from the filling bobbins when put into the weaver's boxes. This does away with the old time sprinkling of the filling which usually makes floors all wet and slippery.

Then another thing is the regulating of the humidifiers, having automatic controls and seeing that they are operating as they should; in other words, that they are set to the best interest of the weaving. It is a good thing to have a recording instrument to record the controls and to show just how they are acting. They might become too lazy. This means that they are on too long and off too long and need turning up, and the recording instrument is the only thing that can indicate this properly. Someone might say that it could be told by timing; perhaps so, but think how much time has to be put spent in doing this, and while doing this the mind is more or less off the other duties of the room that require attention. Then it is only good for one time, while the recording instrument is good for whatever time for which it is wound. Quick acting controls mean even running humidity, even running humidity means good running weaving, assuming that everything else is okeh.

The writer saw another thing which attracted his attention. You know we often have filling frames, especially, which are not functioning as they should. We go around hunting for these frames and probably never find them. This fellow had a rig fixed up on the end of all his bunch-builder frames, with little spikes sticking up, for the doffers to put a full quill and a bunch quill on when the frame had been started after each doff, there showed a full quill and one representing the kind of a bunch which that frame was putting on, so that the only thing the section man had to do, or the overseer, was to take a peep at each frame's bobbins, and the one that was not right had its own picture showing its imperfections. I thought to myself "How simple, so simple that as far as I am concerned, it has been passed up all these years." I asked the foreman what effect it had otherwise, and he said that the thing had caused the section man to get down and look into more things than he ever had as far as he knew. It's kind of funny, but we've all got to be wound up occasionally, and the tighter, the better, for it must hurt if it does much good or makes an impression which will keep us studying. When a foreman studies, and puts into practice what he learns, then his subordinates get the habit.

Speaking of kinky filling, this appears from causes which most men least expect. Take for instance in the card room, in creeling, and even at the drawing frames. We ordinarily don't think much of making a small doubling at these machines, but at the drawing frames, the slubbers, intermediates and the fine roving frames, any doubling that is of any length, will make a heavy place in the yarn, and at this heavy place, with the twist figured closely for the standard yarn, will be excessive twist for this particular place in the yarn, and of course when it gets to the looms and the percent of moisture is not great enough to control this, it is bound to show up in kinking, but with this conditioning arrangement it is a great help in keeping it from showing up in the cloth.

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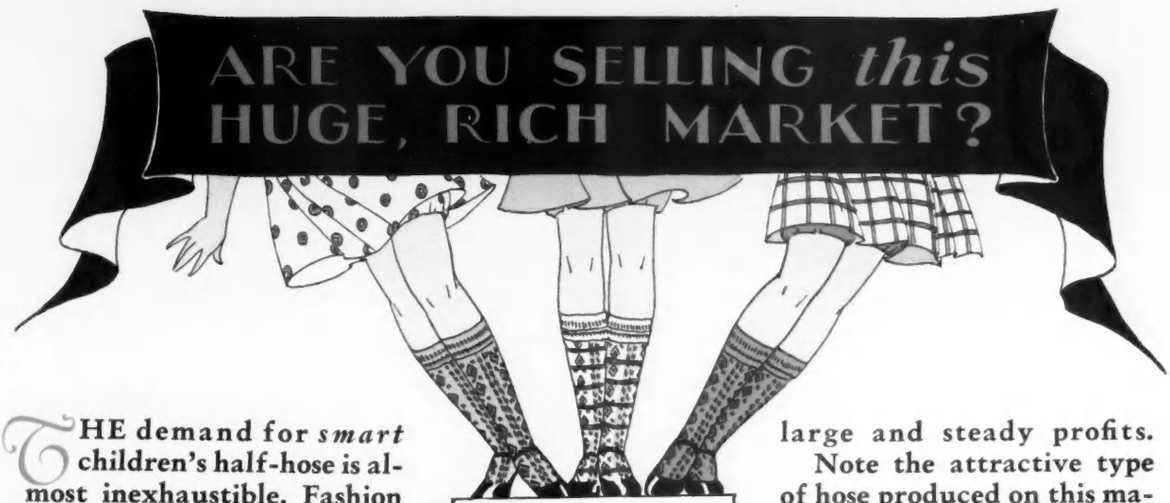

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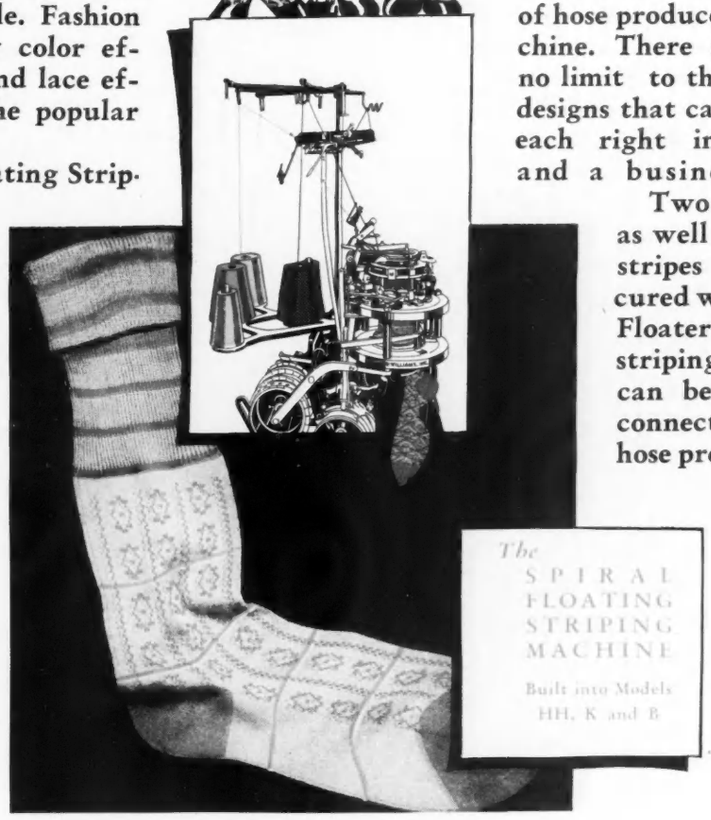

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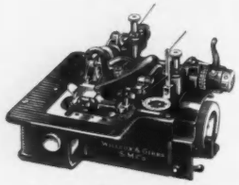

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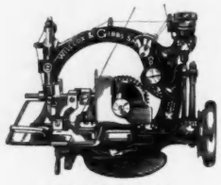

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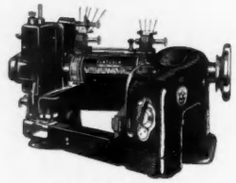

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Manufacturing Full-Fashioned Hosiery

By C. H. Baxter

Article 1.— SLEAZY KNITTING

This Problem Can Originate in Many Places, from the Arrival of the Silk to the Dyeing, and Anywhere Between these Operations

PROBABLY the most serious problem which confronts the full-fashioned hosiery manufacturer today is—what can be done to overcome sleazy knitting or, as some call it, crepe stitches, in a finished stocking?

I visit many plants in the course of a year, and especially have done so during the past year. Every man I have visited has asked me what can be done by them to overcome this condition.

Unfortunately, up to the present time, no absolute cure has been found, but in many plants I have visited, the percentage of sleazy knitting is very large and in most cases, it is due to the lack of knowledge of what might be done to overcome most of the trouble.

Much has been written about this, and testing laboratories where tests are made on full-fashioned hosiery have given considerable information to the manufacturers that has been very helpful.

Sleazy knit stitches are caused by many things connected with the knitting operation and can only be overcome by trying to eliminate all the causes from the time the silk is conditioned to the finished product.

Silk Presents First Difficulty.

The first problem to overcome is in the silk itself. No one, of course, can control the action of the little silk worm, so as to give even silk and an evenness, as far as the hardness of gum is concerned. So it is necessary for the throwster to overcome the defects caused by the worm. A manufacturer, who purchases silk, should at all times purchase his silk from a reliable throwster and especially a throwster who understands the proper soaking of silk. The oils used in connection with the soaking of slik, are very important and much sleazy knitting is caused by silk which was not given the proper treatment by the throwster.

The silk as received from the throwster should be soft and pliable, so that when it forms the stitches on a knitting machine, it will not crack or break the stitch during the knitting process. Uneven soaking or distribution of the oils will cause dry places in the silk, and when this occurs, no amount of solution or water will penetrate into these dry places.

Winding Comes Next—

The next operation where care and attention should be used, is in the cone winding of the silk. Many mills in recent years have been knitting their hosiery from what is called a dry package. By this I mean that they knit the stocking directly off the cones as received from the throwster. I myself have experimented with this method and can only say that to get the best results and reduce the percentage of hosiery with so-called crepe stitches, it is necessary to re-cone the silk over a back winding solution for the purpose of having it as moist as possible during the knitting process.

—Along with the Winding Solution.

The solution over which the silk is wound is another thing in which care must be exercised, otherwise all the good that the throwster has put into the silk will be washed out by inferior preparations used for making a back winding solution. Almost all dealers or manufacturers of so-called silk oils have a preparation for making a solution for re-winding silk; but many of them are unfit for use, and whenever used, will cause the finished hosiery to have crepe stitches. Any preparation used for a solution should be free from alkali, and this also holds true in the oils used by the throwster. Any oil or soap with an alkali content has a tendency to soften the gum in the silk, and when this condition exists, the finished product will show sleaziness in knitting. Any solution for re-winding must be such that

An Editorial Announcement of Interest to Full-Fashioned Mills

THE author of this article will be remembered by full-fashioned mill men as the author of an extremely interesting series of articles on full-fashioned subjects which appeared in COTTON last Winter and Spring, being published in the November and December, 1927, and January, February, March and April, 1928, issues.

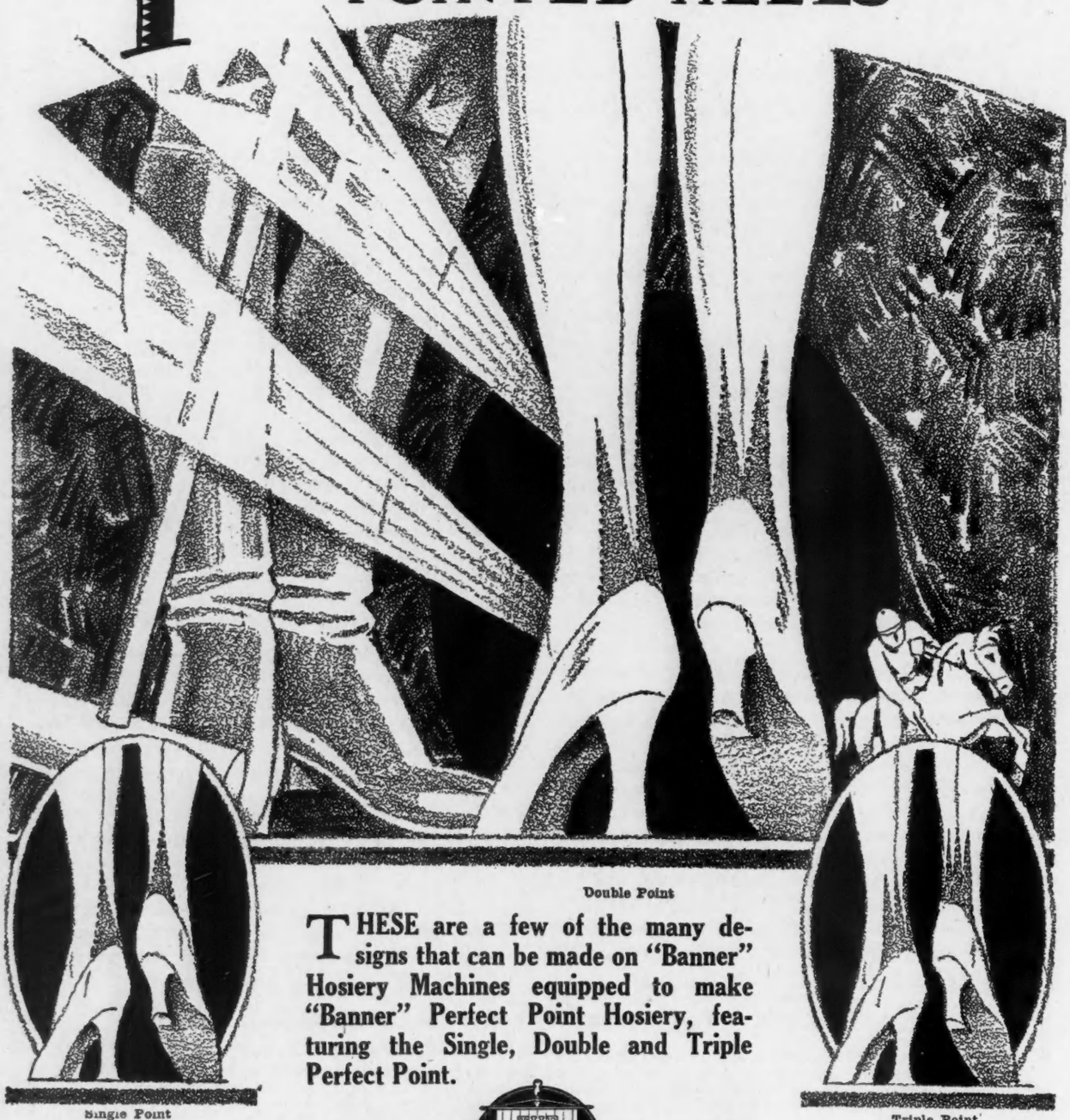
We are pleased to announce that starting with the accompanying article on Sleazy Knitting, Mr. Baxter will discuss for COTTON'S readers further phases of full-fashioned manufacture. An extended experience in the field and a prominent position at present in the industry qualify him for the task.

Later articles in the series, of which this is the first, will appear in succeeding issues of COTTON.

The lay-out of a full-fashioned hosiery mill will form the topic of an early article. Other articles will be based on the manufacturing of hosiery, containing helpful hints, as well as remedies for mechanical difficulties. Four related articles along these lines will start with the time the silk arrives at the mill until the product is finished and boxed, ready for the customer.

Criticism and comment concerning Mr. Baxter's articles will be welcomed by the author and the editorial department. In addition to his scheduled series, COTTON offers Mr. Baxter's services in discussing any specific manufacturing problems, when they are submitted as inquiries to the "Knitting Kinks" department; no charge of course being made, since this is a regular feature of the discussion department.—The Editor.

PERFECT
POINTED HEELS



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it penetrates very quickly and also retains this moisture for a long period of time.

Water that has been softened is much better for winding solutions, and it is also well to heat the solution slightly before using it for winding, as a warm solution will penetrate better than a cold solution.

Allow Silk to Stand After Coning.

Another fault I have found which will cause sleazy knitting is in using silk on a knitting machine that has just been wound on the cone winder. In cone winding silk, the speed of the machine is such that the silk runs over the emulsion roll very rapidly and this does not give time enough for the moisture to penetrate through the silk.

It is, therefore, better to allow the cone to stand for at least five hours before using it on a knitting machine, as this gives the silk a chance to absorb all the moisture evenly throughout the entire cone. This will eliminate the danger of dry spots in the silk and as dry spots are one of the causes of sleazy knitting, it can readily be seen that it is important not to use the silk too soon after winding.

SLEAZY KNITTING is a common ailment in full-fashioned plants, particularly in those mills which are new at the game. In this article, the first of a new series discussing full-fashioned manufacturing problems, Mr. Baxter covers the major causes, as well as some of the minor things which contribute to the production of this imperfection in goods. From the silk itself, its winding and preparation for the machine, as well as many mechanical details—there is a multitude of probable causes; and Mr. Baxter, an experienced manufacturer, shows how to remedy many of them.

In the knitting of silk hosiery, all manufacturers must use some method to give additional moisture to the silk before it enters the needles, to form the stitch. The method generally used is a metal trough, placed in the rear of the tension or felt cups, and this trough is filled with water or with a similar solution, as used in the winding process. Wide felts, about ¼-inch thick, are placed into the trough to absorb the moisture, and the silk is run over these felts. This method is about the most satisfactory method that can be used, but here again, one must be careful, otherwise sleazy knitting will occur. The felts used in these troughs will, after a period of time, become hard and sticky and will not take up any moisture when in this condition. Many times have I found in knitting mills, that the felts have not been changed for many months, and the result is, the knitted fabric is too dry and sleazy knitting is very prominent in the finished hosiery. These felts should be changed every month. The old felts can be washed out by boiling in a washing solution, but I have found that never should they be washed over once, if one wants to secure good knitted fabric. The cost of replacing new felts is very small in comparison to the results obtained by getting good fabric, and neglecting to replace felts because of the cost, is false economy.

Change the Felts and Wash the Troughs.

The troughs should also be cleaned out at least every two months and fresh water or solution should be placed into the troughs. I find that softened water is equally as good as a solution for moistening silk on the knitting machines, but would recommend that the water be heated before placing it into the trough. A knitting room of a full-fashioned hosiery mill is usually quite warm, so that the water in the troughs is, as a rule, warmer than the water taken from a faucet. By heating any additional water to be poured into the troughs it keeps the water at a temperature that will give better penetrating results.

The construction of a stocking, especially in regards to the number of courses per inch, also has an effect on sleazy knitting. Any stocking that is knit too loosely will usually distort the stitch or loop, so that when the hosiery is dyed and finished, the entire stocking will have a sleazy appearance. The finer or closer one knits the stitch, the less danger in securing sleazy fabric. Some manufacturers will make a stocking less courses per inch for the purpose of reducing costs, but the few yards of silk usually saved by this method does not offset the poor quality stocking that is produced. My experience has shown me that this is a very poor way of reducing the cost of making hosiery and I believe that if anyone will look into this carefully that it is better to put more courses per inch into any stocking and then find other ways of reducing the costs.

Mechanical Causes of Sleazy Knitting.

I have tried to cover all the possible things that might cause sleazy knitting due to the conditions of the silk, but we must not stop here, as there are mechanical troubles that also will cause sleazy knitting.

One of the frequent causes of sleaziness is needles out of alignment, especially if a certain number of needles are pushed or pliered back too far. Needles pliered back too far in any one needle bar will cause a loose stitch to be made and if a series of these stitches are made close together, sleazy stitches will result.

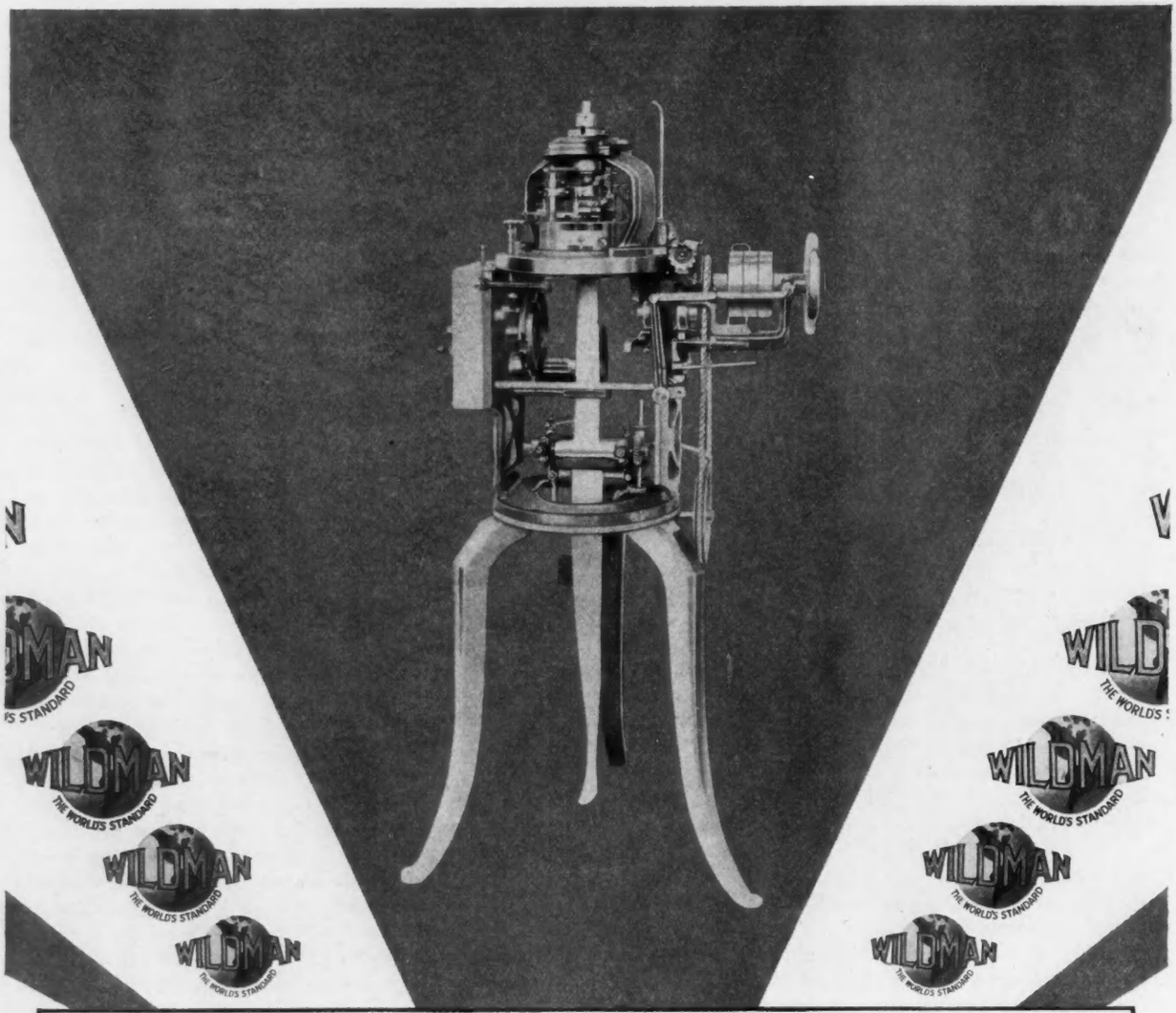
Another cause is what is called as "sinkers flying back". Some makes of knitting machines have springs on the jack head to prevent the striking jacks from falling back, but on such machines that do not have these springs, it is necessary to grease the striking jack head to prevent the flying back of sinkers. In greasing these heads one must be careful as to the kind of grease to use.

I have known some to use rendered mutton fat and others to use regular cup grease. Such grease as this will eventually dry up and cake in between the striking jacks and when this occurs, additional greasing will not stop the trouble any longer.

In recent years I have been using an Alemite grease for this purpose and find it very satisfactory, as it does not dry up and always retains its lubricating qualities for the prevention of sinkers flying back.

Knitting the lengths of stockings unevenly on any one machine will also cause sleazy fabric, especially in the stockings that are knitted too long. Even lengths should be knitted at all times and these should constantly be watched. This also holds true in knitting a stocking where one side of the stocking is longer than the other side.

Another cause for sleazy knitting is either too much or not enough play between the falling bar and the butt of the jack sinker. If there is too much play, it causes the sinkers to fly back and the result is uneven loops or stitches in the entire stocking. Not enough play will give tight and loose lines, and these will make a very unsightly looking stocking. This is something that should be checked continually, as the springs holding the adjusting screws on the slur cocks, sometimes are not strong enough to hold the adjusting screw in place and the result is that it has moved, resulting in too much or not enough play, as well as mak-



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ing the stocking too short or too long. Never should one make an adjustment on the slur cock adjusting screw without first testing the play between the falling bar and butt end of the jack sinker.

One should also be sure that the same amount of play is even across the entire sinker head. If one side of the sinker head has more play than the other side, it will make the stocking run either long or short on one side and whenever this fault arises in a stocking, the long side will show sleazy knitting.

To make good, clear, even fabric, it is always necessary to have the knocking over on as hard or as much as possible. The knocking over operation on a full-fashioned knitting machine has a great deal to do with the unevenness of stitches in the fabric. Many times certain stockings show sleaziness, and the only remedy is to raise the knocking over bit bar on the sections showing such a condition. A knitting machine should always have the knocking over bits adjusted, so that it is knocking over as hard as possible without producing cuts in the fabric.

Improper Dyeing Can Cause It, Too.

Last, but not least, I must mention the dyeing process in connection with producing sleazy knitting. Perfect knitting can be absolutely ruined by improper methods of degumming by the dyer. My own experience has shown me that any dyer who uses the machine method of degumming hosiery will distort the stitches and cause the hosiery to be very sleazy in appearance. I must profess that I know absolutely nothing about dyeing hosiery but I had an experience some years ago with sleaziness caused by degumming in machines, that taught me that the dyer can also be the fault of sleazy hosiery. Previous to this experience, we had a dyer who used the old-fashioned method of degumming in tubs. We changed dyers for various reasons, and when this change was made we at once were troubled with an extreme amount of sleaziness. At first we blamed it on the condition of the silk, then checked our knitting machines, but no improvement could be made and each lot received from the dyer was as bad as ever. We then decided to make a lot of hosiery out of one raw lot with the soaking and conditioning the same throughout the entire lot. We knitted the lot on one machine and then gave one-half of the lot to the first dyer and the other half to the dyer who was then doing our work.

The dye lot received from the first dyer showed no sleaziness whatsoever, whereas the lot received from the other dyer was sleazy. Upon investigation, we found that both dyers were using machines for dyeing, but the first dyer degummed the hosiery in a tub, using only a good grade of olive oil soap. The other dyer was degumming in machines with boil-off oils and dyeing in the same machine. This convinced the dyers that the old method of degumming in the tubs, using olive oil soap only, was the best method. And the result was that our dyer changed his method, accordingly, and we had no further trouble. I know that this will be interesting information to some of the readers, as in the past few years, I have helped others to overcome sleaziness by calling their attention to the dyeing operation.

Sleazy knitting is not due to any one condition, but is something that must be constantly watched and rectified; otherwise, the percentage of sleaziness will be great. Don't take the attitude that because there is no cure, it must exist in hosiery. We, as full-fashioned hosiery manufacturers, must agree that sleazy hosiery is very unsightly looking hosiery. Therefore, until a cure is found, the only thing to do is to try to eliminate the causes we now know which will cause sleaziness and thereby produce quality hosiery that meet with the approval of the customer.

Some New Designs in Knitwear

Many sensational novelties are being featured in the knit goods industry and while these new numbers are being introduced to the market there are several of the larger mills in the metropolitan district which are having some difficulty in getting their prices up to a reasonable profit for the producer. Wage adjustments are coming up before the manufacturers, who were under the impression when opening prices that these questions would have been settled long ago.

Through the union of hosiery knitters affiliated through the A. F. of L., a standard wage scale is being presented and while manufacturers claim that living is cheaper in some districts than in others and wages should be rated accordingly, the union has presented their prices and plan to insist upon its general adoption.

Throughout the northern New Jersey district this matter has been taken up by the business manager of Branch No. 7, who has appointed several committees to meet the manufacturers and present their demands. While there has been no open breach between the two factions, it has been agreed that they do not agree and not come to any understanding in all cases. In some mills the manufacturers have been paying close to the standard scale and in a few slightly over, the latter naturally being satisfied to meet the demands of the committee.

Among the novelties which they are presenting at the moment are some interesting beach robes, and the more colorful the effect and combination the better it is liked. Some batik effects are among those displayed by several of the larger sellers and polka dots, geometrical printed effects, stripes and some checks, all in one, two or three colors are included.

These coats look somewhat like the raincoat, although the effect is different and while windows at northern beach resorts show these articles profusely, it remains for those at such places as Atlantic City to display these goods on living models, and not to stand them in the window, but to have them promenade the boardwalk in the hours when most people are moving and also to send them to the beach during the rest and bathing hour.

In some cases hats are made to match, while in others a black or white is preferred . The large brims have been prominent up to this time and the handy bag is also one of the necessities for this type of outfit.

While in all cases these wraps are not rubberized, generally speaking they are, particularly, the lining, so they can be used over the bathing suit. In others used for the beach alone the rubberized cloth is not necessary. They look somewhat like the silk coats which have been prominent this season, although others resemble flannel. Silk, rayon, worsted and cotton yarns are used. In some cases the rayon is combined with the worsted or cotton. The silk is used alone or in combination.

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Training Hosiery Dyehouse Operatives

This, the Concluding Article of the Series, Discusses Water Softeners, Storage, Shade Matching, Etc.

By Charles B. Ordway

Part Four

THE water softener must be watched over by a competently-trained man who is punctual in the following details of operation: backwashing, keeping the required amount of brine prepared from common salt, keeping the zeolite and various sand strata clean and renewed, etc. The operative must have a thorough working knowledge of all valves, amounts of common salt needed, stated intervals of time that routine operations must take place.

WATER SOFTENERS.

Water softener manufacturers usually furnish a chart as to the instruction and operation and care of the particular type of softener being used. This chart can be placed in a glass case and hung on the wall by the softener. Then the various valves and outlets must be lettered or numbered to prevent any possible errors in operation; the marking should be identical with that on the chart in every respect.

It is of great aid, in locating possible sources of trouble in faulty degumming of silk and boiling off of rayon and bleaching, to have a record kept of the degrees of hardness of the untreated water and the necessary soda ash and alumn used in settling out, if the mill does this. Small mills, as a rule, buy their water from the city supply system, and will then use only a softener. Sometimes, by having a filter, it will permit the using of muddy water during the rainy seasons when there is seepage and overflow into a city water system.

This can be summed up by showing the operative that in dry weather, the water will contain insoluble metallic salts, that cause various changes in dyeing, bleaching and degumming. These changes, with the degrees of untreated and treated water, should be tabulated along with data for the rainy weather when the water is "soft" and various metallic salts are more easily removed.

CENTRAL STORAGE ROOM.

There are times when the water shows neutral (zero hardness) and the addition of some weak alkalies like trisodium-phosphate is needed in processing. While at other times the water may show neutral on every test, a small addition of acetic acid is helpful in securing level dyeing. This shows the need for the proposed water chart for future reference and especially during the absence of the dyer or textile chemist.

If the mill is located away from the city or without a chemical and dyestuffs supply house convenient, then a well designed and operated storage room is necessary, though many mills will allow the barrels of oil, chemicals, dyestuffs, soaps, etc., to lie around the mill in the first vacant space that the truck driver can find.

A large salt bin where the salt can be unloaded from the car, a slightly raised platform where the oils, chemicals, hydrosulphite and dyestuffs in barrels can be placed—these make for economy and efficiency. Also there should be a number of shelves for kegs and smaller containers of materials. Free alley-ways must be left open between the platforms and shelves for easy moving and placing of materials. Open alley-ways also are of advantage in case of fire starting in the perborate or hydrosulphite of soda drums. I have seen this type of fire start in dyehouses through carelessness in getting moisture and some oxidizing (chemical) agents mixed on the hydrosulphite soap. Such a fire requires days to start but only by utmost care and watchfulness are such errors checked and eliminated.

A storage room must be kept dry and free from fumes that are usually found in a supply room of this type if the tops of barrels are left open and covers are not used.

The operative who is responsible for all incoming material must keep a record on file of the amount of each product in stock. He must keep a check on outgoing lots to the dyehouse and incoming lots from the freight office. On short notice, the dyer can find out all necessary supplies and the ones with which he is supplied. All products should be marked with their straight nomenclature and not with the trade name—dyestuffs being excepted in this case. One man can usually handle the water softener and storage room, but he must keep his records, and not "cut the corners," for it does not pay.

Acids can be handled much easier by using automatic carboy handlers and lifters; these are safer and one man can empty a carboy and not be endangered by slippage or splashing of acids, etc. This addition to a dyehouse will save doctor bills and make the men realize the importance of safety first.

SHADE MATCHING ROOM.

The shade matching room comes last, but is not least in importance. This room must be adjacent to the laboratory or formula clerk's desk, and arranged as follows:

Northeast exposure, so as to insure the purest of daylight free from glare and shadows. Every match is best made in the same location, and thus when there is a redye or return of goods from a customer, the mill executive can have a good case to battle on if the returned products show up okeh on the regular shade-matching desk. The equipment outlined on the next page is of vital assistance in exact duplication of formulae and matching shades and fastness tests to light:

WITH this installment, Mr. Ordway concludes a series of four articles covering this important subject. The series was begun in the August, 1928, issue and appeared consecutively up to the accompanying section, in September and October. The series has been comprehensive, covering discussions of dyeing laboratories; weighing-up rooms; dyeing, bleaching, hydro-extracting, semi-drying, water softening equipment, etc. In addition to discussion of the machinery and equipment, Mr. Ordway has dealt also wtih modern methods, formulae, practices, etc.

Artificial daylight lamp.
Light testing; fadeometer, daylight glass forms.
Hosiery forms.
Case for holding shades and samples in jars, boards, or most suitable arrangement.

It is necessary to keep well-cleaned windows. Daylight cannot get through dirty glass, and if a red brick building is close by, the reflection from it is objectionable and prevents exact color matching.

For light to medium depth shades, the artificial daylight lamp can be used satisfactorily; if the fiber or hosiery to be matched is *identical* with the fiber that is the dyed shade. These lamps are of great assistance in comparing the change of certain dyestuffs under daylight with that under gas or electric light. The noting of these changes will enable the dyer to overcome possible future trouble by rematching all shades that give too marked a change as noted.

By installing several sizes of hosiery forms the dyer can have a dyed hose of the shade to be matched placed on a heated form, while the hosiery being dyed and matched is drying on an adjoining form. The comparison of these two hose after being cooled will give the dyer a more exact match than by matching the shade against a hosiery or fiber that has been in storage.

There is no use of wetting the hose, but only heating it a few minutes or so. Following out this point will enable one to secure matches that will remain okeh after being in storage.

In arranging a case for keeping the various shades and styles, there are several plans that can be used. One is to have a rack with a number of holes or compartments and placing a small glass bottle in each of them, painting the number of the shade on the porcelain or tin top. Inside the bottle can be kept the various styles that are dyed in that hosiery color properly tagged on each sample.

Another method is the panel arrangement. Its main advantage is that it does not take up quite as much space as the rack method. The panel forms are to be made free to swing to and fro, and can be pressed together when not in use, so as to prevent fading from sunlight. This panel board is similar to the display forms used for advertising purposes.

This concludes the discussion of some of the more important phases of hosiery dyehouse operation, and the instructing of operatives to be economical, efficient and careful in their work.

Dyeing Three Fiber Hosiery

In recent years the problem of the hosiery dyer has become a real source of worry, as he has to contend with dyeing so many different combinations of materials, and the shades he has to make are so numerous that it requires all the skill at the command of the dyer to keep up with the changes that are constantly taking place, in both materials and shade, says Joseph S. Unterweiser, speaking to the American Association of Textile Chemists and Colorists.

One of the many troubles that confront the dyer of today when he has light shades to produce on cotton and silk hosiery, continues Mr. Unterweiser, is to get the color to dye level and at the same time to get the color to penetrate into the seams. It has been the custom to degum the material and then dye, but this method in most cases has proved to be unsatisfactory and therefore a new process had to be looked for. After numerous experiments it was found that by leaving the gum in the material and then degumming and dyeing in one operation, that very good results were obtained and the hosiery coming out of the dye bath when dyed this way is level in shade and the seams are well penetrated.

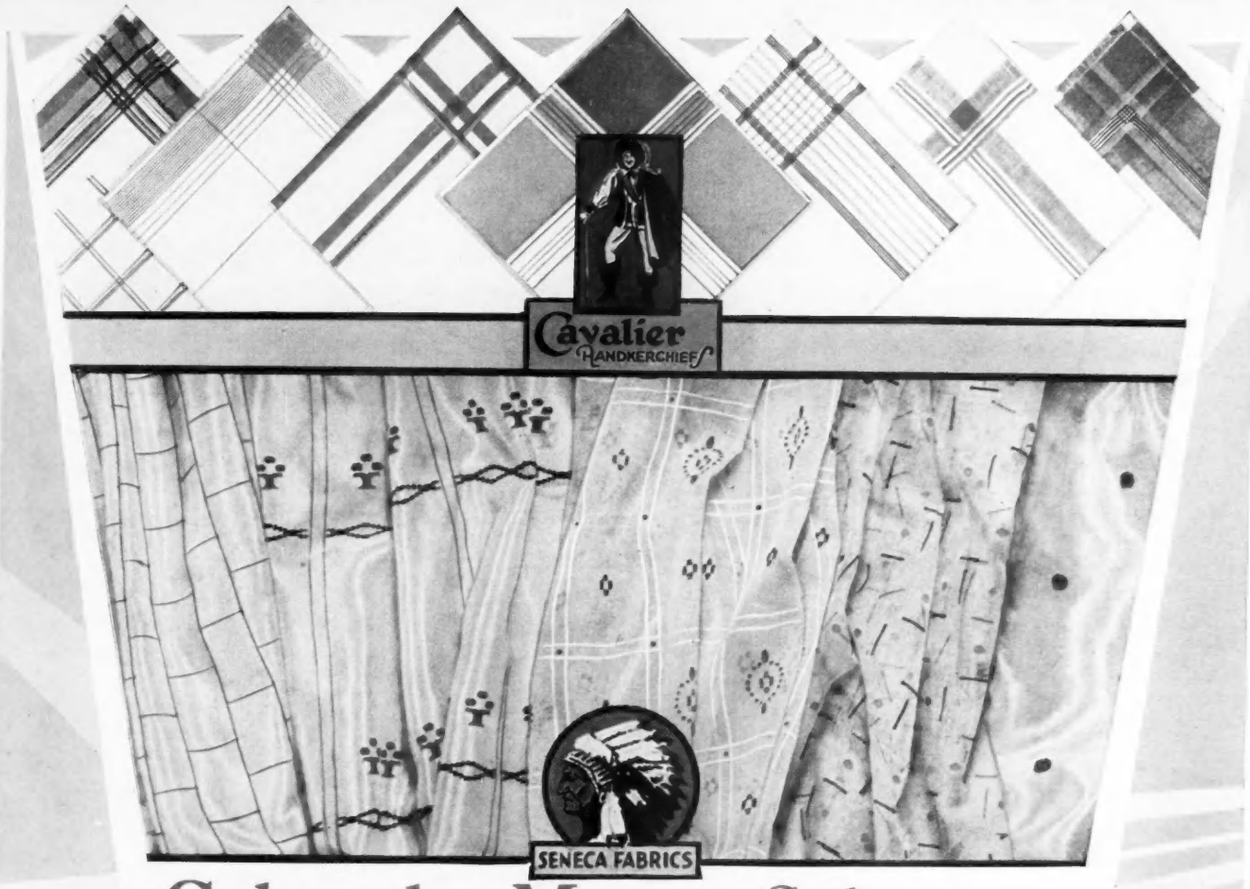
The usual procedure is to wet out the material in boiling water for about fifteen minutes. The temperature is then lowered to about 100 degrees F., and the necessary amount of either boil-off oil or soap, whichever the dyer prefers to use, and the dyestuff is added to the dye bath. The goods are then worked for a short time at this temperature, and the steam is turned on and the bath brought to a boil. After the material has boiled for about thirty minutes and a sample is taken, the silk is considerably heavier than the cotton, owing to part of the gum still being left. This, however, will not be the case after the gum is entirely removed, which usually takes about one hour. The silk will have to be shaded with some neutral dyeing acid colors if direct colors only were used at the start. A small quantity of salt can be added to the dye bath if desired, but this is left to the discretion of the dyer, as there are quite a number of dyers who prefer to eliminate the salt entirely when dyeing light shades.

This method of dyeing saves considerable time, as the degumming process is eliminated, and by reducing the time that the goods are in the dye bath the material is left in a much better condition and the possibility of chafe marks on the silk reduced to a minimum.

The dyeing of triple fiber hosiery consisting of tram silk, artificial silk and cotton is another problem the hosiery dyer has to contend with, as here he has the addition of the artificial silk fiber, which has a greater affinity for direct colors than the cotton, but this condition can be corrected by eliminating the salt from the dye bath at the start, in which case the cotton will take up most of the color, especially so when dyeing light shades.

The dyeing is usually started at 100 degrees F. with the addition of 1 per cent of soluble oil and color, brought to a boil and run for about twenty-five minutes. A sample is then taken and the artificial silk will be lighter in shade than the cotton. An addition of common salt at this time will force the color to go on to the artificial silk and a good union between the cotton and artificial silk is obtained. Care must be taken not to add too much salt, for then the artificial silk will pick up too much of the color. This, however, can be controlled after a few experiments. The shading of the tram silk can be done with neutral dyeing acid colors.

For the production of heather effects such materials as wool and cotton, silk, artificial silk and cotton, wool and silk are largely used. The wool and cotton hose are usually made with the heel and toe of cotton and the body with a combination of wool and cotton. This class of material is mostly dyed with the one-bath process with neutral dyeing acid colors in conjunction with direct colors that do not stain the wool to any great extent.



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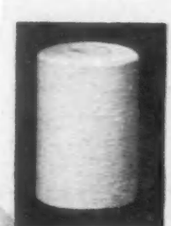

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With the Universal system the degree of inspection is predetermined, and with the cleaners once set there can be no variation in the inspection.

With eye inspection, the jack spooler or warper operative is responsible for deciding when to stop and remove a slub, with the result that inspection of yarn by this method becomes temperamental and decidedly uncertain.

The Universal magazine cone creel, carrying a running cone of four pounds with a reserve cone of the same weight tied to the end of the running cone, gives a continuous supply of yarn to the high-speed jack spooler or section warper. A speed of 300 to 400 yards per minute may be obtained on the high-speed jack spooler fed by a magazine cone creel, and a speed up to 250 yards per minute on a high-speed section beamer or warper. The method of jack spooling or section warping, calling for eye inspection, admitted of a warping speed of from 30 to 60 yards only per minute.

Preferably, the worsted yarn should be mechanically inspected in the single, while winding onto cones or tubes for twisting. After twisting, the yarn is wound onto the wooden cone ready for the magazine creel.

Finally, and more important than the obvious economies in labor through high-speed winding and warping, there is a marked improvement in the quality of the loom beam.

With the Universal system, the yarn being taken from a stationary package, each end under its own individual tension, the resulting warp will be free from tight and loose ends during the subsequent weaving operation. There is a substantial gain in loom efficiency when using warps made by the Universal system.

UNIVERSAL WINDING COMPANY

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UNIVERSAL WINDERS

Ad No. 24. Printed in U.S.A.

Operating the Banner Pointed Heel Machine.

EDITOR COTTON:

Since the pointed heel is at present all the rage and most stores are offering quality merchandise at very attractive prices, a description and operating principles of the new style of Banner machine for this work will probably be of interest.

The interior of the machine remains the same as a regular machine, but several important changes have been made around the cam plate and head, which will be considered in order.

The finger arrangement has been changed in order to simplify making a slipper sole if it is so desired. The first finger (facing the machine) is for the pointed heel thread; the second finger, the boot thread; the third finger, the double-sole thread; the fourth finger, the garter-top thread; the fifth finger the heel and toe thread and the sixth finger is for breaking thread or ravel stop. The drum lever wires (174) on the first and second fingers are crossed in order to keep the cams on the drum (17) in their regular position. The double sole cam (88) has been eliminated. In the first three fingers are porcelain eyelets pointing directly toward the needles, with screw adjustments in the finger-raising device to regulate their height. Should the boot thread ride over the needles and cause a run-off as the pointed heel attachment goes into action, it can be remedied by grinding off part of the finger seat and shortening the finger a trifle, thereby feeding the yarn to needles closer to the right hand corner of the mouthpiece. The first and third fingers must be raised high enough to feed only the elevated needles, but the first (pointed heel) finger should not be so high that the yarn will not catch at the start of the pointed heel, as there is no take-up device used and there is a tendency for the yarn to loop.

The front stitch cam is released from action while making the pointed heel and double sole, and in order to open the latches, preparatory to feeding the yarn to the needles, an auxiliary latch opening cam is placed just after (following motion of cylinder) the lowering picker post. At the point of the carrier ring a hardened cam is placed the same as the foregoing front and rear stitch cam. In the sinker cap is placed a sliding ring (similar to the ring which holds the presser cams on the spring beard machine) which contains an auxiliary sinker cam to release the sinkers when latches are opened in the advanced position. To lessen any extra unnecessary sliding motion a spring band is placed around the sinkers which are slightly beveled to keep it from flying out of position. In setting the sinkers the usual method is followed, as no stitch is formed with the auxiliary sinker cam. Caution must be used in adjusting the auxiliary latch opening cam so that it does not raise too high when in action and also raise the cam plate a trifle, thereby tightening the stitch to a noticeable degree from the point of the pointed heel to the regular heel. When using dyed yarn this irregularity may not be seen, but on gray work it is often very prominent.

A high cylinder is used with sufficient space below the cam plate for nib jacks which gives positive control of the needles, thus insuring a perfect pointed heel to the exact specifications of the designer. These nib jacks are of three different sizes, high, low and medium. The high jacks should be directly in the middle of the point, with an equal number of medium jacks on each side. The number of high jacks is determined by the number of needles in the cylinder, how far in the long butt needles pointed heel is to extend at regular heel, or width of point desired at the start, but cannot be less than two unless a special nib jack were made with a nib on each side which is not practical, due to the thickness of the jacks. A raising cam, which continually raises these long butt jacks throughout the stocking is located just ahead of the lowering picker post and must be polished very smoothly and be slightly higher towards the cylinder so that these jacks do not twist and cause a smash. Be sure the raising cam is far enough away from the cylinder to give sufficient clearance to the medium jacks. This cam is graduated on both sides to take care of the long butt jacks in the reciprocating motion.

The main raising cam bracket is placed just below the instep raising cam, (128) to which is attached a fixed lowering cam a trifle shorter which engages the series of raised jacks, excepting the last jack raised on each revolution of the cylinder in addition to the line of jacks previously raised.

By this method it will be seen that a perfectly graduated heel is formed if that design is desired. But to meet the desire of the feminine sex for a variety of patterns a shipping cam is placed just under the stitch cam blocks. This cam can be regulated to pull down the nib jacks,

We invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need no conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All accepted contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

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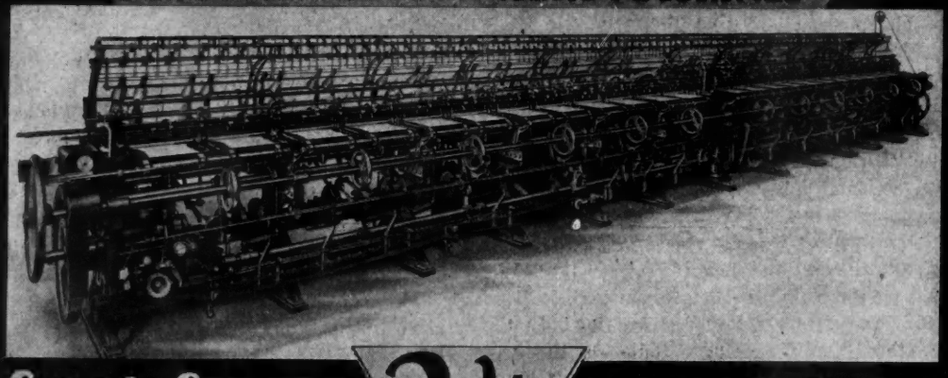

SOLD and SERVICED 24 SECTIONS ALL GAUGES in the U.S.A. by

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which are raised on each revolution, for a number of revolutions and then be released for a certain number of revolutions, thus giving most any desired effect in steps, such as one and two, two and four, six and six, etc. The shipper cam is regulated by a disc located in the right outside of frame and driven by a small arm which is geared to the 104-tooth gear. This disc contains holes for pins, on which the connecting rod shipper cam rests. When the connecting rod is resting on a pin or pins the shipper cam is out, leaving one needle raised on each revolution, and vice versa. If the shipper cam does not function properly or remains in against the cylinder a square heel effect will be secured the width of the raised needles. The driving arm of the disc should be so regulated, by means of an adjustable idler, that the shipper cam connecting rod stops at the same relative point between the pins at the end of each pointed heel, thus making all stockings of a uniform pattern.

Following this cam is a leveling cam just high enough to keep the nib jacks at a level so the raising cam will engage them when it goes into action. When the raising cam is out of action, the jacks will pass under the leveling cam. This cam should be up close to the shipper cam and should be highly polished at all times, as a slight nick will cause the jacks to gradually bend and break.

These cams, except the raising cam, must be kept close to the cylinder, with just enough clearance for the nibs to pass. The best method to use when nib jacks start breaking is to polish and bevel all the cams with the edge nearest the cylinder a trifle higher so that the extreme point of the jacks do not receive any of the pressure when in action. Enough tension must be put on the jacks to keep them from sliding down to the bottom of the cylinder. Turn the machine a few times by hand and have all the cams adjusted so that they go into and out of action at the point of the cylinder where no nib jacks are used, under the long butt needles. There is ample room to do this, but remember, the action will be a few needles quicker by power.

The slipper sole is made by having short nib jacks under the ten, twelve, or desired number of short butt needles at the extreme end of the double sole. When the pointed heel is made, the raising cam goes in close to the cylinder and will eventually raise every jack, but as the machine snaps out of the heel, all the nib jacks are at the height of the topmost point of fixed lowering cam, thus passing over the leveling cam, and will be engaged by the raising cam. The raising cam, however, is adjusted to engage only the long and medium butt jacks, leaving the short jacks to lower their respective needles to level with the long butt needles and fed only by the boot yarn until the desired point near the ring toe is reached, when, by an extra move of the drum, the raising cam goes into an extreme depth, thereby raising the short butt jacks, one each revolution, due to the shipper cam being out of action, widening the sole at the toe to the same width as the pointed heel. If a step effect is being used in the pointed heel, thereby throwing the shipper cam into action in the slipper sole, the step effect can also be secured when the short butt jacks are engaged prior to the ring toe. By using medium jacks in place of short jacks, the regular sole is made. When the slackening device is used in the slipper sole it is advisable not to make it too narrow or have the stitch too loose, as all the short butt needles draw a shorter stitch and this loose effect is often noticeable where short butt nib jacks are used.

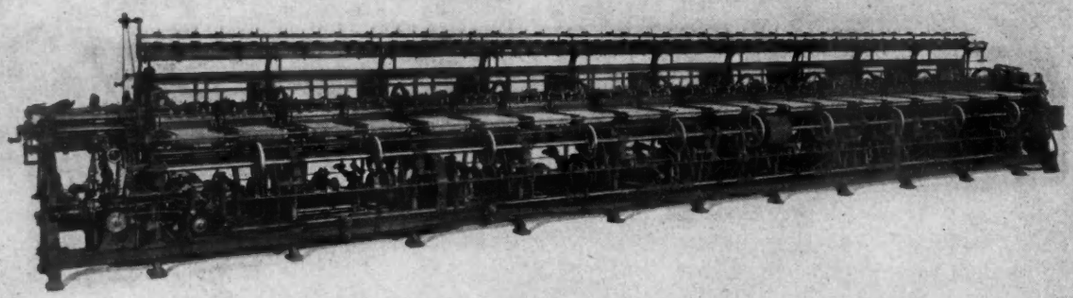
To control these extra attachments, a cam disc is used, similar to that used on other type machines. First cam—nib jack raising cam; second—latch opener cam; third—blank; fourth—shipper cam and disc; fifth—double sole slackening device; and sixth—stitch cam. If care is taken that these cams function freely and properly, much unnecessary labor will be eliminated by the fixer.

When the pointed heel is started the nib jack raising cam goes into action first and, as stated before, all cams must drop into action at the point of the cylinder where there are no jacks. Second into action is the shipping cam, and if this has been set to stop at the point between the pins it will not require further attention unless the driving arm is out of time, causing the shipping cam to function too soon or too late, which will break the jacks and necessitate resetting the driving arm. To do this, loosen the set screws of the arm and turn the cylinder so there are no jacks near the shipper cam; then, with the cylinder in this position, turn the arm so that the connecting rod has just dropped off a pin and tighten the set screws.

Third into action is the auxiliary latch opening cam, which must be into action before the first nib jacks are raised, and must open all latches that are not opened by the left-hand stitch cam as it is being released from action. If there is a looped thread inside the stocking at the start of the pointed heel, then it is certain that these latches where the loop is formed, were not opened for that revolution, and the remedy is to put a longer cam onto the cam disc to throw the latch opener into action sooner or apply the same method to release the stitch cam later. This conditional method will no doubt cause smiles, but after working on machines awhile a fixer learns to use both his head and his hands. If the auxiliary latch opener opens the latch of the first short butt needle on the first revolution, satisfactory results will be obtained. When going out of the heel it goes into action in the high butt needles, which are raised, and does not cause much trouble.

Simultaneously, the stitch cam is released from action and raises the left-hand picker above the line of the raised needles. The best method is to have this cam open the latch of the last long butt needle, allowing the short butt needles to pass by and then complete the final movement in short butts, but it must have the picker raised high enough to miss the first raised needles of the pointed heel. The pointed heel thread finger should drop into action in the short butt needles so the thread does not catch in the last needles being raised by the stitch cam on its way out, thus being fed to all needles and making rings around the entire stocking. When the stitch cam goes back into action going on the reciprocating motion, it should snap in on the short butt needles so the picker does not catch the first long butt needles.

Should it be noticed that the stitch is a trifle tighter in the pointed heel than just before, examine the adjustment on the rod which pulls out the stitch cam. If it is jammed tight, the block no doubt will be moved. When all adjustments are satisfactorily made and this defect still continues, place an indicator on the cam plate to determine whether there is any variation when the fashion plunger is moved from its resting place on the last fashion kick to its resting place when making the pointed heel, which is usually the resting place when the pawl is on the first step



Section for section it produces more revenue than any other machine in the stocking industry.

THE **READING**

FULL-FASHIONED KNITTING MACHINE

of the heel link. It is sometimes necessary to file a few thousandths off at this point, but it should not be done until all other causes have been investigated, nor without an indicator, since it is very easy to take off too much, which will give the opposite result, and there you are.

The fashioning of the stocking is made more gradual by having the teeth cut in the stop motion wheel to which is fitted an auxiliary pawl operated by the evener dog. It is controlled by the regular fashion links, of which 25 may be inserted. A very satisfactory stocking can be produced by having the fashion cam adjusted to raise the cam block 15/1000ths of an inch from the start of the fashioning to the heel.

On fine-gauge machines it is advisable not to stop the machine while making the silken part of the stocking unless absolutely necessary. The sudden starting invariably causes a loose course at this point which is very prominent when material is dyed in the lighter shades.

The fashion marks are made by pulling out the left hand stitch cam 3/32nds of an inch, allowing the regular fashion needle (7/32nds of an inch butt, of which 2/32nds projects from the cylinder slot) to pass by without raising the latch from the fabric. The yarn is fed to the needle with the cam in this position for three revolutions when the cam goes in, releases the latch and knits the accumulated yarn in a so-called fashion mark at one cast-off.

The favorite size cylinder for pointed heel stockings is 3½ inches in diameter. The 60-gauge, 260-needle has approximately 23.6 needles per inch, 70-gauge 280-needle—25.4 needles per inch, and the 70-gauge 300-needle—27.2 needles per inch. It can readily be seen that a very sheer fabric can be produced on any of the foregoing sizes which will compare favorably with the fine gauge full-fashioned offerings.

Naturally, on these machines the needles are an important feature. All side cams and cams on side blocks should be smooth and accurately adjusted (stitch cam adjustment for these gauges being .710 of an inch) so that no unnecessary resistance is placed on the needles due to their thin sizes. A raise cam needle guard (708) is used to carry over the needles in run down stitch race and should extend beyond the lever point of the right-hand stitch cam. The stitch cams must be concaved very lightly, about 1/32-inch, and not over 5/16-inch long. If they are concaved too deeply excessive chattering will result and too much of a strain placed on the yarns.

Care should be taken when replacing broken needles having jacks under them or broken jacks to align the jacks before starting the machine. Turning it first by hand often saves much unnecessary labor. Perfect alignment of needles will also help to decrease the short misplating streaks often noticeable in the pointed heel since the yarn is not fed to one needle continuously. BANNERMAN.

Changes in the Executive Committee of The Cotton-Textile Institute.

The Cotton-Textile Institute, Inc., 320 Broadway, New York City, has accepted the resignation of Edwin Farnham Greene from the board of directors and the executive committee. Mr. Greene recently resigned as treasurer of the Pacific Mills and his resignation from the board and executive committee of the Institute arose from the fact that only officers of member mills of the Institute can be directors or members of the executive committee. It was also announced that Alfred E. Colby, the new treasurer of the Pacific Mills, has been elected to the board of directors and the executive committee of the Institute to succeed Mr. Greene.

A Routing System for Fancy Half-Hose.

EDITOR COTTON:

It is always a problem in operating a fancy half-hose mill, to keep in touch with all of the different styles and colors which are being run. I just counted up and find that in our mill of around 200 machines, we have 23 separate and distinct styles in process today. It is a problem to keep the knitters straight on the colors, yarns, etc., in this plaited work, and as superintendent, it is a complicated arrangement for me to keep in touch with.

I have devised a system which in my case works out very satisfactorily, and which I am describing in this letter for the benefit of any readers of "KNITTING KINKS" who might have occasion to use something of this kind. It is carried out with two sets of cards, which are shown herewith.

In Fig. 1 is a card on which the various information regarding the stocking is placed. You will note that there

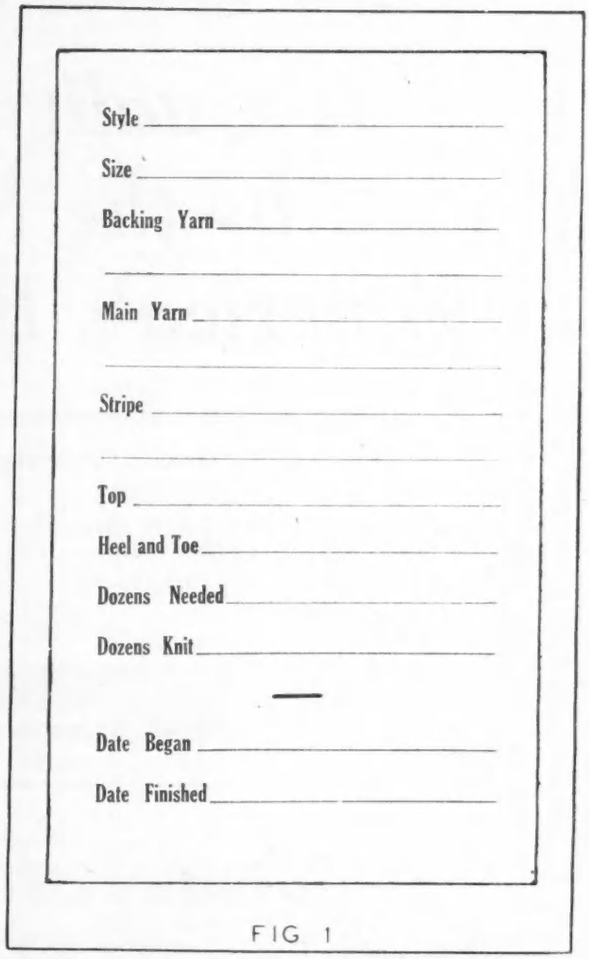


FIG 1

is a place for the style number as well as for the size, although, with reference to the size, we have these cards printed on different colored card board, and these different colors designate the different sizes. We use amber, red, blue, etc., each one of these colors meaning a certain size, so that by merely looking at it the operator can know what size the stocking is. Then there are lines showing the color and kind of backing yarn, and main yarn, the yarns in the different stripes, and the yarn used in the top, heel and toe.

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#215 Montgomery Ward & Co. 2nd 1/3 of order

(873 dozen) Henderson's (72 3/B) 6-18-28

Letter	36½ Lok	60⅝ N & L	Face Woodenier	40⅜6 P. Backing	40⅜6 P. Stripe	9½	10¼	11	11½	12
AR	Black	Black	Bleached	Black	Gold Brown	(13)	(61)	(40)	(25)	(20)
BR	Sud. Blue	Sud. Blue	"	Sud Blue	Black	(17)	(77)	(52)	(34)	(27)
CR	Myrtle	Myrtle	"	Myrtle	Green	(11)	(47)	(34)	(22) ×	(17)
DR	Dark Grey	Dark Grey	"	Gun Metal	Red	(14)	(67)	(45)	(27)	(24)
ER	Beaver	Beaver	"	Beaver	Black	(17)	(77)	(50)	(30)	(25)
			finished	8-7-28						

FIG. 2

On the line below this, we show the number of dozens which are needed on this particular order, and immediately below that is a line on which the knitter indicates the number of dozens he has knitted. We happen to operate on double shift, and the day man indicates how many of the desired amount he has finished and the night man finishes out the lot if possible, or if not, indicates how many dozens he produced. There is a place shown for the date on which the work was begun and for the date upon which the order is completed. This card is 5½ x 3¼ inches, and is placed on the machine as a guide for the operatives. You will see that there is no possibility of the operatives getting confused as to the kind and color of yarn to be used for the various parts of the hose.

The larger form, which is shown as Fig. 2, is one I have developed for use in connection with these cards. One of these forms is made out for each order and is hung on the wall in my office. It gives the order number and the number of dozens to be knitted. You will note also that it shows me the various color combinations of yarns going into the hose, and the number of dozens of each size in each color combination. The black dots placed by the numbers under each size indicate to me that that particular size and style is in process of production, and when the circles have been drawn around the figures, it means that that portion of the order has been completed. When the whole job is done I simply mark the date it was finished, at the bottom of the card with a pencil. You will see from this that by looking over these forms hanging on the wall, I have a pretty good idea of what is going on and how the production is coming through on each of the styles.

CONTRIBUTOR No. 4068.

Knitting and Cutting Waste on Underwear.

EDITOR COTTON:

You recently published a request from a subscriber asking for figures giving the percentage of knitting and cutting waste in the shaping of garments on different classes of underwear.

In answer to this, I would say that so far as knitting waste is concerned, there should not be any—in fact, the flyings from the yarn from knitting machines are of such small proportions that to figure it would be practically impossible, and if the knitting machines do happen to cut an excessive number of holes in knitting the cloth due to the carelessness of the man in charge of the knitting machines, the waste of such cloth should always be figured in the cutting department where it really is decided what is best to do with the cloth at the time when the cloth is cut into garments.

With reference to the average weight of the waste in cloth from cutting ladies' and men's garments, this depends entirely on the style of garment that is to be cut. On men's medium weight and heavy weight union suits it depends upon whether they are high necked or low necked suits.

If they are low neck suits, one garment can be matched into another and thus save considerable waste. If they are high necked suits, it depends upon whether they are long sleeve or short sleeve suits. There is a difference in the waste accumulation in both of these.

On ladies' rayon underwear, the matter depends also upon the style that is cut. There is no waste in cutting a ladies' rayon vest as long as it is a straight side vest; and in cutting bloomers it depends entirely on what style of gusset is used; and in cutting union suits it depends upon the style of cut and whether the sides are shaped or straight. This is equally true in cutting balbriggan underwear.

Now then, in cutting fleeced underwear, it is generally accepted as being a long sleeve high neck garment, but here too, the question depends upon whether shirts or drawers are cut for boys or whether union suits are cut for men or union suits for ladies. The ladies' union suits or vests are shaped on the side as a rule and create more waste than do men's suits, which are never shaped in the body.

CONTRIBUTOR No. 4046.

Mixing Dyestuffs in the Dyehouse— Using Straight Dyes for Desired Shades.

EDITOR COTTON:

Recently I was engaged in a discussion with a friend about the mixing dyestuffs in the dyehouse, using straight dyes to arrive at a given shade. I decided I would put my thoughts in a letter to your "KNITTING KINKS," and I would be glad to get any comments from your readers on the subject.

This is the work of an experienced dyer, in my opinion, one who has a good knowledge of dyestuffs. While a technical education would be a great help, it is not strictly necessary. I know of good dye mixers whose education did not extend beyond grammar school, but what is indispensable, however, is a good and extensive knowledge of arithmetic, especially that part which includes the figuring of proportions so as to be able to make up a sample formula and traduce it into a formula of many different weights. Anyone can learn who makes up his mind and means to do it, but it cannot be done in a day or a week, nor by simply reading formulas in a book. It takes practice and plenty of it. With it, a dyer will be able to so train himself that he acquires a sixth sense: the sense of colors; the ability to judge, by simply looking at a match, what is missing and how much and what to use to make it perfect.

There are certain rules, however, that if followed will enable the inexperienced but ambitious ones to learn and acquire the necessary experience by keeping at it.

Assuming that cotton, rayon and silk are to be dyed, a man should get some sample cards of dyestuffs. Every dyestuff dealer will be glad to supply these free of charge. From these cards he may select the dyestuffs nearer in color to the shades he has to dye, then send for product sample of the dyes.

A laboratory well-equipped with an elaborate apparatus is not necessary, but a heating stove supplied with gas, or a hot-water heater, several beakers to hold a quart or more of water, several glass rods about a foot long, a thermometer, some graduates of different dimensions and several bottles, are all the necessary utensils. A reliable scale or torsion balance is also needed.

Having made a selection of dyestuffs and procured some of them, the next thing is to ascertain their tinctorial strength. One gram of the dye is dissolved in 1000 c.c. (cubic centimeters) of boiling water. This will give one milligram of color for every c.c. of water. Now a few scraps of materials to test out the dyestuff are cut in pieces to weigh 10 grs. each, and test dyeings are made, using 10 c.c., 20 or 25 c.c., 50 c.c., etc., according to the shade that is wanted. From these experimental trials other tests may be made, using two or three, or more, dyestuffs. The idea is to select for a base, the dye that is the nearest approach to the sample; using the other to shade or correct the dyeing until a perfect match is obtained.

The thing to keep in mind is that the dye solutions used should be measured correctly with the graduate and recorded, every addition marked down; and when the shade wanted is arrived at, the amount and number of dyestuffs written in a suitable tag, is pinned on the material and kept for future reference. From a formula for 10 grams of material by proportion, a formula for 10 pounds or 100 or more can be easily calculated.

I have given the metric system for weights because in my opinion that is the easiest way of figuring our formulas in the laboratory, and is the system used in chemistry all over the world.

Tables and charts to traduce grams and kilos into grains, ounces and pounds can be easily procured from dealers to be used to figure out easily percentages and proportions.

Assume the would-be dye-mixer has a number of dyed pieces of straight dyes. He wants to produce a shade of grey. He looks over his samples of greys; he picks out one that in depth and color approaches the nearest to the shade he wants. He finds that it needs a little shading. The formula on the tag of the sample selected, we assume, reads: 25 c.c. Direct gray A.F. It needs a little toning of red and yellow. If for cotton or rayon, or both, some direct red or a direct brown or yellow is selected. One gram is dissolved in one liter of boiling water, and to 25 c.c. of direct gray, 1 c.c. more of direct brown or of red or of yellow is added to the bath and a trial sample is made and matched to the sample. If more is needed it is added to the bath until a correct match is obtained. The bath is made up at the ratio of one part of goods to 30 parts of water for dark colors and one to 40 for medium and light colors and salt or Glauber salt in proportion from five per cent for light to 10 and 20 per cent for medium and up to 40 per cent for black and the darkest shade.

Sample dyeing is done in pots heated over a gas jet, but best results are obtained by heating the bath in pots immersed in boiling water. If the water for heating is kept at the boil constantly, the temperature of the bath will reach a point of 200 degrees F., which is sufficient for most dyeing on cotton, rayon and silk. If a higher temperature is desired, however, some common salt or saltpeter or glycerine added to the water bath will raise the temperature to very near boiling in the dyeing bath.

If the sample to be dyed contains silk also, some acid dyes should be used to shade the silk in connection with the direct colors. After a few trials following the foregoing suggestions, one should be able to at least get a start, and after awhile, to be capable of producing results.

D. N. (TENN.)

Wants Cleaning and Oiling Methods for Full-Fashioned Machines.

EDITOR COTTON:

There is a point with reference to full-fashioned manufacture which may seem trivial, but one which I believe would be of interest to other mills as well as to our own plant, and that is, a discussion of the various systems of cleaning full-fashioned hosiery equipment. We would like to hear what others are doing along this line, both as to the frequency with which cleaning is done, as well as to the materials used and the manner of procedure. It may be necessary to include also the oiling method and how this is handled, and I believe that this too would be of interest. Any information which the readers of your knitting department can furnish along these lines will be appreciated.

CONTRIBUTOR NO. 4075.

Eliminating Cut-Outs in the Heel and Toe.

EDITOR COTTON:

A short time ago a friend of mine submitted a question to me, which he stated had him and his machinists dumbfounded as to its cause. He stated that he had some Scott & Williams Model K 260-needle machines, equipped with the reduced heel and toe attachments. These machines were making large cut-outs, or "bust-outs" as his machinists call them, almost anywhere in the heel or toe. A sample of this trouble was also shown me. Looking over the sample, I noted one thing in particular: The yarns used in the heel and toe were very uneven, heavy places appearing here and there, also where the cut-out occurred. Although there are various causes of cut-outs of this nature, which I will discuss in this letter for the possible interest of the readers of "Knitting Kinks", uneven yarn is an important one. A

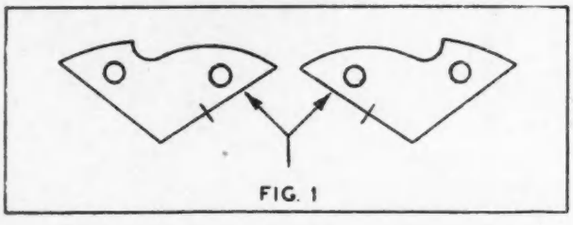


FIG. 1

change to another kind of yarn, as an experiment, may sometimes prove an advantage.

Another important consideration in connection with this trouble is the matter of the speed of the machine when on the heel and toe. I have found a speed of not more than 225 revolutions per minute to be safe. Too much speed causes excessive vibration, on the sinker top, needles, take-up and everything that has to do with the making of a heel and toe.

Care must be taken to see that the sinker top is not set around too far on both the left and right sides of the needle paths. If this is so, the reciprocating motion of the machine causes the yarns as they are being fed to the needles, to lap over the nibs of the sinkers at the going-down point of the stitch cams, causing this trouble.

Every machinist should know the importance of the heel and toe finger, the throat plate, needles and stitch cams in relation to this trouble.

The finger must set high enough on its heel when in action to have a free throw of the yarns when going from one side of the throat plate to the other. Care should be taken to see that no grooves are worn in the bottom of the finger, and also to round off the outside edges of the finger so that as the yarns are going back and forth, there will be no chance of their catching.

The throat plate must not be too close to nor too far away from the needles. The newer type adjustable plates are the best thing to use, and can be set where wanted. The front edge of the throat plate should not be more than 1/16-inch from the hooks of the cylinder needles. This plate also must be free of worn grooves, or anything that will prevent a free swing of the yarn.

The needles form the stitch, so if they are not straight, this trouble will occur. A nib of a sinker being bent will cause this trouble at times.

The stitch cams play an important part also. The sketch in Fig. 1 shows the parts of the cams which must never

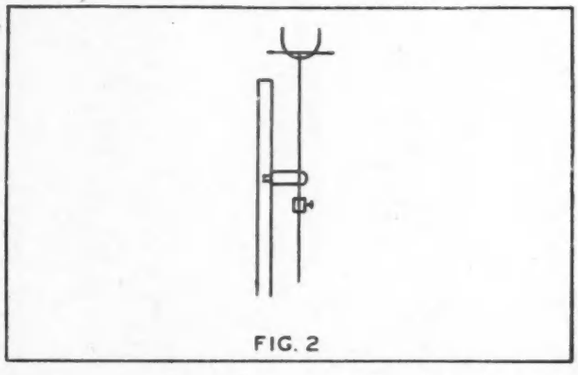


FIG. 2

be cut down. As these cams come from the factory they are of the proper shape, and for good knitting must be left that way.

The proper tension on the take-up spring and the take-up disc tension is important. The take-up spring should be adjusted so that when in action the tension will be slightly more than enough to pull the take-up wire up as the yarns are being released. The disc tension should be set so that when the yarns are released, the disc will allow the threads to remain in the center of the disc until released again. If too much tension is applied the threads instead of remaining between the discs will stay below it, and cause an uncertain motion of the take-up wire, resulting in large cut-outs in the heel or toe.

The take-up yoke wire is another important point. As shown in Fig. 2, the set-screw must be set when on the heel or toe. The purpose of this yoke wire is to pull the take-up guide in action when on the heel or toe. The up-and-down motion of the take-up will cause the bottom back part of the take-up to hit on the shaft to which the take-up yoke wire is fastened, causing this trouble. When off of the heel or toe, there should be ¼-inch to ½-inch space between the guide and the set-screw.

I believe the mechanical latch openers are a help in preventing this trouble. The brushes have a tendency to hold the yarns when making the reciprocating motion.

Cones of yarn, especially when they are run down toward the bottom, are as a rule more or less overlapped on the bottom of the cone, causing a pull when that point is reached and resulting in this trouble.

In Fig. 3 I am showing a method of threading the heel

KAUMAGRAPH

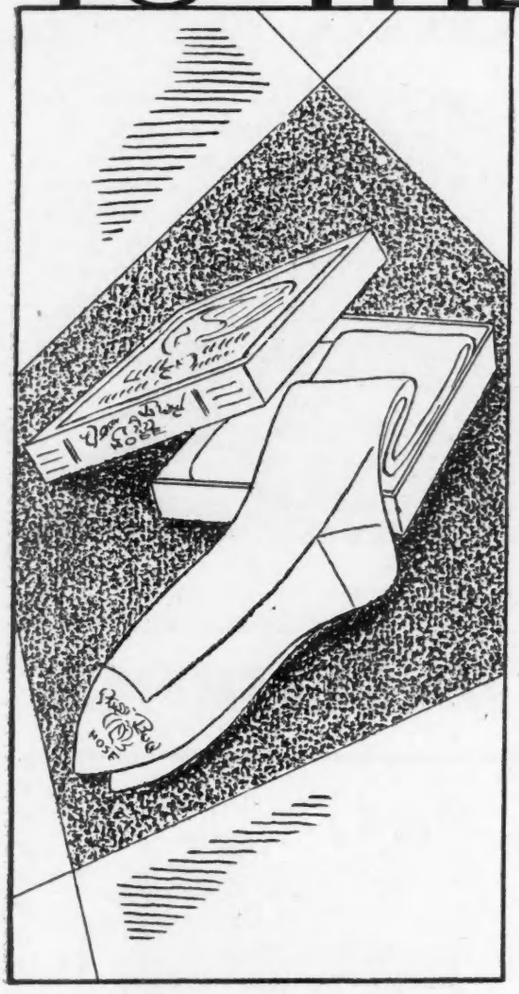
A certain concern had decided to spend $100,000 in advertising. Considerable money had been spent on preliminaries when the president discovered that no provision had been made for applying the trademark to the goods. Without such identification, advertising was out of the question. Kaumagraph came to the rescue . . . by developing a special type trademark transfer . . . then the advertising campaign was allowed to proceed.

The merchandising manager of one of the best known New York department stores had tried everything. He wanted a mark that couldn't wash out, wouldn't rub out and that was acid-proof. Even Kaumagraph Permanent Transfers, usually suited to just such conditions, failed to meet his requirements. So Kaumagraph came to the rescue by inventing a transfer that did meet his requirements — a super-permanent transfer that defies every effort to remove it.

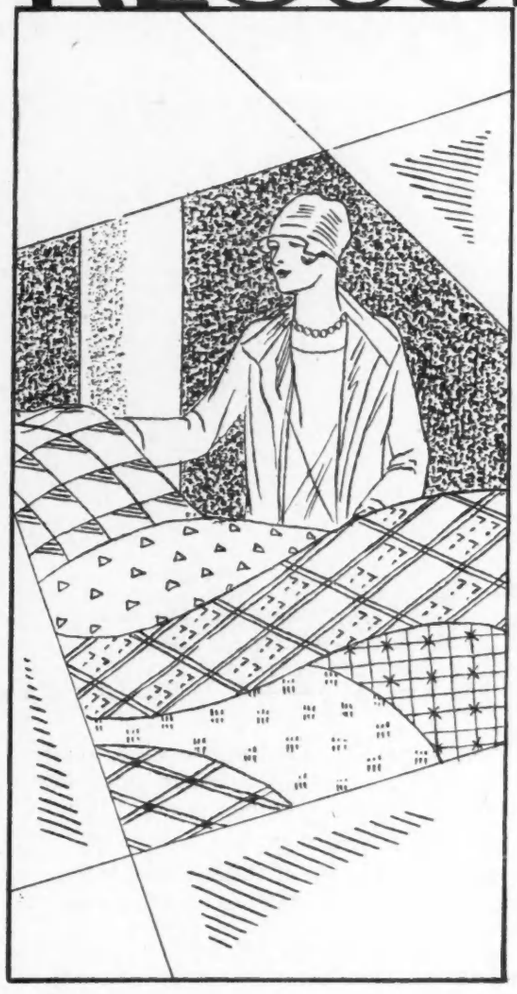
UNTIL 1903 there was no practical method of trademarking textiles and hosiery. Then Kaumagraph came to the rescue—with Kaumagraph Dry Transfers. That was the beginning. In the 25 years ensuing, Kaumagraph has again and again come to the rescue of business in the ever-broadening field of identification.

To do so Kaumagraph has developed eight kinds of trademarks. It has invented machines for applying the trademarks. It has organized a lithographic department at the suggestion of hosiery mills who wanted to purchase transfers and hosiery packing more conveniently. It has maintained an Art Department for designing trademarks and packing; a Research Laboratory for the development of new ideas and the solution of imminent problems; a Service

TO THE RESCUE!



A hosiery jobber wanted to apply his trademark in such a way that it could not come off no matter how often the hosiery was washed. During the last 20 years there have been many attempts to produce a transfer which would defy washing. Kaumagraph came to the rescue with Kaumagraph Permanent Transfers. The Kaumagraph Permanent Transfer remains today the only successful product of its kind.



A new cloth was put on the market. It was widely advertised by the manufacturer, yet it made little sales headway. Experimental shopping in retail stores for this cloth by name, proved that in 50% of the purchases the cloth of competitors had been substituted for the advertiser's goods. Kaumagraph came to the rescue by providing the advertiser with the means for placing his trademark at intervals along the selvage of his cloth.

Department to assist its customers in registering trademarks.

This progressive development for a quarter of a century has placed Kaumagraph in an unchallenged position of authority on matters of identification. Cited above are four examples of the way Kaumagraph has employed its exhaustive knowledge to aid others. Perhaps you are having difficulties on some matter of identification . . . perhaps Kaumagraph can come to *your* rescue!

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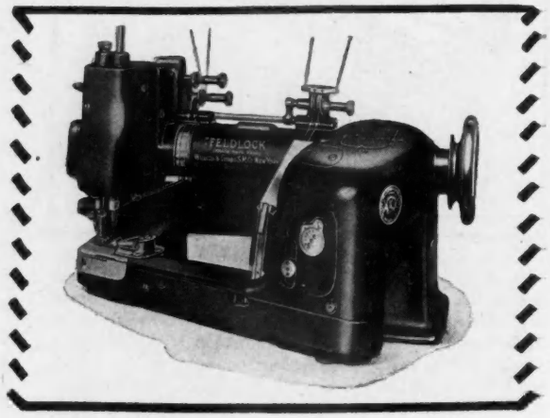

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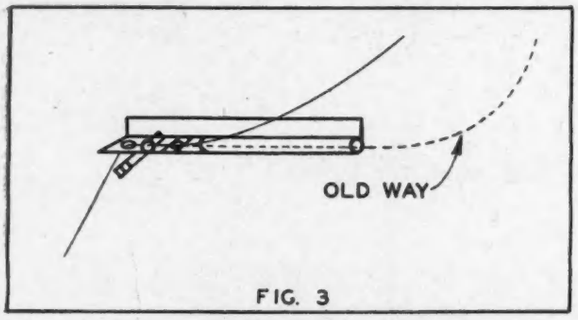


FIG. 3

and toe yarn which I have found, from years of experience, to relieve a lot of strain on this yarn. This applies mainly to machines equipped with stop motions. Instead of running the thread through the back hole in the take-up bracket, run it straight down to the needle tension as shown in the sketch.

RYMI.

Overhead Requirements of a Full-Fashioned Mill.

EDITOR COTTON:

I have just received a letter from a friend asking for information from me as to what items should be considered as overhead in a full-fashioned hosiery mill and the approximate overhead costs for the production of about 200 dozen pairs a day.

He does not state whether he is operating day and night or daytime only; but have given him the following outline of what overhead he should have for a production of 200 dozen.

In making out overhead cost, the following items should be considered as overhead:

Indirect labor,
Superintendent,
Foremen and foreladies,
Office and clerical,
Mechanics, Firemen and Watchmen,
Shipping clerk,
Executive salaries,
Depreciation of machinery,
Repairs and Replacements,
Heat, Light and Power,
Supplies,
Rent of building, if rented,
Depreciation and upkeep of building.

This, I believe, covers practically all the general items, and expenses connected with these various items should be listed under each heading.

I judge that the man who wrote about this is interested in securing information as to what amount his overhead should be, but this cannot be given to him as each mill operates differently and he must solve his own overhead problem.

In the matter of indirect labor, the salary paid to each employee is something that concerns the employer and employee only. Supplies must be watched and each mill should know their own requirements. Heat, light and power depend upon cost and rate in the locality the mill is located in and the charges for same. Machinery depreciation should be ten per cent per year and building depreciation from two to five per year.

I will endeavor to give, however, an outline in reference to how much indirect labor should be employed for such a production. First, he must have a superintendent. In a production of this amount, the superintendent should know fixing of knitting machines and ought to take care of the seaming, looping and winding machines. As an assistant, he should have a machinist, not necessarily a man acquainted with knitting machinery.

A foreman for inspection of all work in every operation.

A clerk to make collection of gray work. This clerk can also be used for checking returns and payroll work. Can use a girl for this work.

A clerk for distributing work to seamers and loopers; also sending goods to dye.

A foreman for finishing, pairing, boxing and shipping.

A boy as a shipping clerk.

A fireman, who could also do the janitor work.

A bookkeeper and stenographer.

If he operates a night shift in the knitting department, a foreman must be employed, who understands knitting and the fixing of machinery.

No winding foreman or forelady should be employed, as the winders should receive their instructions each day from the superintendent.

This, in my opinion, is all the labor needed for a production of 200 dozen daily; and of course, the salaries to be paid to each one, is something that must be determined by the owner.

Evidently this man is new in the full-fashioned hosiery business; so I advised him that he watch out and not employ too many supervisors but combine several jobs, so that one person can take care of it. Overhead must be watched closely; otherwise, with prices that are quoted for hosiery these days, he will operate his plant at a loss.

C. H. BAXTER.

What is the Best Boil-off?

EDITOR COTTON:

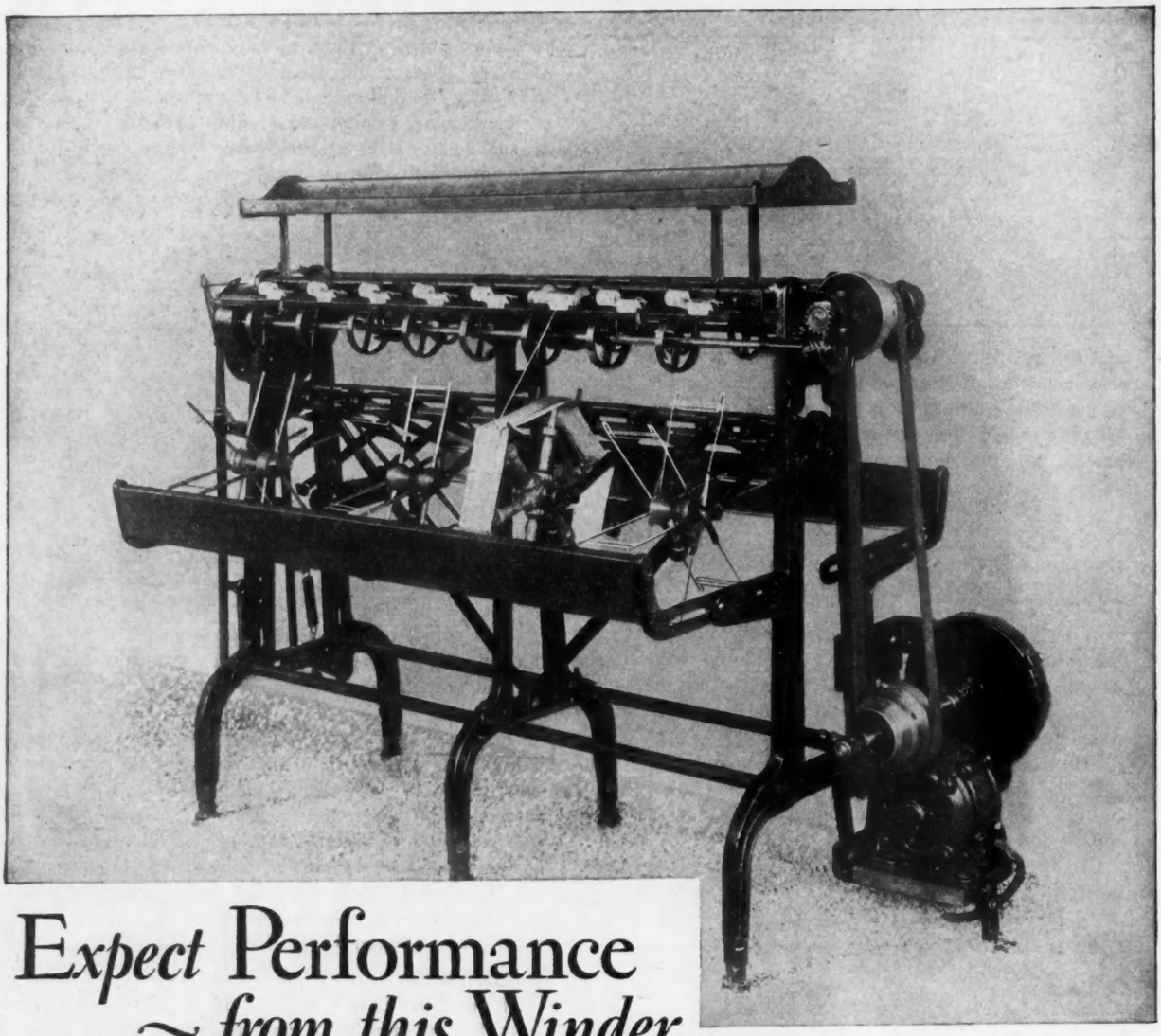
I would like to have some of the contributors to "KNITTING KINKS" give their ideas regarding the comparative value of a 23 per cent boil-off and a 25 per cent boil-off on full-fashioned silk used on 39-gauge Reading machines.

Yarn bought thrown and in the gum is regularly designated by either 25 per cent boil-off or 23 per cent boil-off with usually an 11 per cent moisture allowance added. We are not interested in using a partially degummed yarn, but will knit on fabric from regularly back wound thrown silk in the gum with percentages, of course, based on the gross yarn, including this gum. We have had varying results, depending on local conditions, with each of these yarns on seamless work, but we have not as yet determined the preferred boil-off for full-fashioned goods, and if some of your readers will give us their ideas and experience on this point they would be helpful to us, and I feel sure that they will also be of interest to other readers.

CONTRIBUTOR No. 4074.

Oxweld Company Announces New Equipment.

Three medium pressure-type acetylene generators for welding and cutting have been placed on the market by the Oxweld Acetylene Co., 30 East 42nd Street, New York City. The type MP-2 medium pressure acetylene generator is being built in two sizes, having 50 and 100-pound carbide capacity respectively. These are being built to replace the earlier medium pressure acetylene generator. The MP-3, having 300-pound carbide capacity, is entirely new, no pressure type generator of this type having been built by the company before.



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It is equipped with the patented Atwood Cam traverse motion with adjustable throw. The knee rails can be adjusted and four types of swifts are obtainable at the option of the purchaser, the regular stick swift, the friction hub adjustable swift, the patented gear adjustable swift and the new style wire adjustable swift.

The 4F will be built for whatever floor space you may desire and you may specify any size or style of take-up bobbin or any size of swift. The choice of either single or double friction take-up is also optional. Your plant facilities will determine whether the drive will be supplied by an overhead belt to a three-step cone or by individual motor attached to the driving end. Send for descriptive literature today.

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The Yarn Market

Philadelphia, Pa., Oct. 17, 1928.

THE MONTH preceding this writing has brought to light some of the business for which the spinners have been looking for quite awhile, in the Philadelphia cotton yarn market. From all accounts, the month opened in what has been its usual manner, a consumers' market. It was evident that prices too low for the dealer to even consider were, nevertheless, beginning to prevail for part of the business moving through the market. It was reported that direct selling yarn mills were taking much of this low priced business. The latter part of the month found the cotton yarn business in a more stable position than it has been in for some time past. It is no longer a one-sided buyers' market. The spinners have proven their ability to keep their stocks well in hand, and the market supply is fairly well balanced with the immediate demand.

The first week of the month preceding this writing remained a consumers' market, from all accounts, despite a definite increase in demand, accompanied by numerous inquiries from trades hitherto uninterested. Up to mid-week, it was pointed out, the prices involved were too low for any spinning mill to make a profit out of it. The latter part of the week found the cotton market in a stronger position. The spinners became more firm in their asking prices and began to refuse to make more concessions to the commission houses.

The second week of the month found one of the most promising rallies of the year apparently getting under way. It is the first such movement since early in July, but exceeds the previous development in that the present wave of buying is much more diversified, including carded, combed and mercerized yarns. Prices are substantially lower now than on the occasion of the last preceding flurry of yarn buying, but the volume for the preceding two weeks has considerably exceeded that of previous months back to March, according to yarn dealers. Combed and mercerized yarns are in the strongest position they have been in for months heretofore, and it is expected that increased buying will further strengthen their positions. One processing company added from one to four cents to their mercerized numbers from 20s/2 to 80s/2.

During the third week, there was much less talk of fractional prices and more discussion of deliveries. Toward the end of the week it was reported that an inquiry for 25,000 pounds of yarn wanted for spot delivery, could not be filled as a unit and was split among several sellers. This was an order for weaving yarns. From the standpoint of dealers and spinners, it has now become quite plain that yarn consumers in general allowed their supplies of yarn to become too low. Yarn prices are holding firm, and while the more extreme demands for quick delivery can no longer be readily met by the dealers, it cannot be said that there is a dearth of yarn in the market. Among yarn consumers there has been a resumption in some quarters of night running. In one instance a big plant is running part of its equipment at night, due to the pressure for prompt shipment of its product. This plant is buying yarns practically all the time lately, but still has not anticipated requirements to any considerable extent.

The Government report showing less than 14,000,000 bales expected officially from this cotton crop, as against 14,500,000 to 15,000,000 bales looked for earlier in the season, gave this week an energetic send-off, from the price standpoint. Spinners and dealers marked their carded yarn rates up one-half to two cents a pound for weaving counts and half a cent for knitting yarns. The carded yarn average price for the week was lifted to 36.32, the highest of any week back to August 4th, and comparing with 34.24 for the week of Sept. 22nd, which was the lowest price of the calender year. The higher prices inaugurated on Monday were maintained through to the end of the week. The new prices were not being resisted by the majority of the buyers, as reports from sellers continued to indicate that buyers were putting more stress on getting quick deliveries than on the prices they were asked to pay. Where market stocks were not available, it was also stated, buyers were requesting that the yarn mills be asked to make immediate shipment of at least part of the orders that were being placed.

Philadelphia prices on Oct. 17th follow:

Single Skeins.

4s to 8s	31½	10s	32
12s	32½	14s	33
16s	34	20s	35
24s	36½	26s	37½
30s	38½		

Two-Ply Skeins.

8s	31½	10s	32½
12s	33	14s	33½
16s	34½	20s	36
24s	37	26s	38
30s	39	40s	45½

Single Warps.

10s	33	12s	33
14s	34	16s	34½
20s	35½ @36	26s	38½
30s	39	40s	45½

Two-Ply Warps.

10s	33	12s	33½
14s	34	16s	35
20s	36 @36½	24s	37½ @38
26s	38½ @39	30s	40 @41
40s	46½		

Frame Spun Carded Yarn on Cones.

8s	30½	10s	31½ @32
12s	32	14s	32½
16s	33	18s	33½
20s	34 @34½	22s	35
24s	36	26s	37
30s	38½ @39	40s	44½
30s dbl. carded	39½	30s tying in	37½

Two-Ply Combed Peeler Skeins and Warps.

8s to 16s	43@44	20s	45@46
24s	47@48	30s	48@49
40s	51@54	50s	55@57
60s	60@63	70s	72@77
80s	82@87		

Single Combed Peeler Yarn on Cones.

18s	42	24s	46
30s	48	36s	50
38s	51	40s	52
50s	55	60s	60
70s	72	80s	82

Mule Spun Carded Yarn on Cones.

10s	35	12s	35½
14s	36	16s	36½
18s	37	20s	37½
24s	39	26s	40
30s	41	40s	49

Mule Spun Combed Peeler Yarn on Cones.

10s	43	12s	44
14s	45	16s	46
18s	47	20s	49
22s	50	26s	51
28s	52	30s	53
36s	56	38s	58
40s	59		

Carpet and Upholstery Yarn in Skeins.

8s and 9s 3-4 hard white warp twist	31 @31½
8s and 9s tinged tubes	30
8s 3-4 hard twist waste	29½

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If it's worth making, it's worth marking

The Knit Goods Market

THE healthy strides with which the domestic markets, for products of the three major divisions of the knit goods industry, moved forward for fall have been maintained. Disasters to business which prophets pictured for presidential election year have played not even a sidetrack part in relation to the movement of hosiery, underwear and knitted outerwear.

Distribution of hosiery is at a healthy stage, improvement beginning during the last of the summer months and gaining impetus in succeeding months. A cursory glance at conditions existing among mills as a whole, reveals more activity than a year ago—more plants operating on overtime schedules and an unfilled demand for hosiery for the masses. If, as held mong manufacturers, prices are inadequate, the complaint can be laid to excess production of certain lines and resultant keen competition. The fact remains, that the consuming public is buying as usual, and that where margin of profit has been thinned, the wholesale and retail trades are bearing their full share of the burden of readjustment in the rivalry due to increasing numbers of chain store organizations. Practically every class of hosiery figures in the better volume of business.

Trading in underwear is showing more nearly the usual fall activity. Orders for men's heavy weights are larger and more frequent, and some manufacturers are in arrears with shipments. This being the result of curtailing output while wholesalers were deferring commitments when they were receiving but meager support from retailers. In the contracting for light weights, rayon is undoubtedly strengthening its position for 1929.

Sweaters are in strong demand for spot and nearby deliveries, but it appears the business is not well distributed among mills, some operating overtime and still under pressure for shipments, while others are in need of business. This disparity can be attributed to the character of product and the merchandising policies. It appears that distribution as a whole may outrun that of 1927, an admittedly "big year" in sweaters. Contracting for 1929 bathing suits proceeds slowly.

Activity among manufacturers of women's full-fashioned hosiery clearly indicates a healthy spot demand and buying for the future. Of certain types of fairly fine gauge for popular prices, some mills in October, reported sold up to the end of the year, and it is stated by a few manufacturers that some leading jobbers are willing to buy at current prices for deliveries in the first quarter of 1929. This, while perhaps sounding like an exaggeration, is not so surprising as might appear at first blush.

Silk is costing mills more than when the present level of prices was established, and there is seen nothing in the markets for the raw fibre to lend much hope of recessions during the present silk year. Taking this view, commitments for early 1929 would appear a comparatively safe proposition. But it is a question whether the average manufacturer would be eager to sell up his mill so far ahead, with undetailed orders to be looked at as representing little more than an intentoin to take the goods if all goes well, and forget all about detailing in the event of downward fluctuations in raw silk or unlooked for happenings in the commodity markets generally.

That distributors would be safe in entering into ironclad contracts for popular low price hosiery for the first quarter of next year is hardly debatable. The popular low price begins with one dollar a pair, for 39 gauge, and finer if manufacturers can find it within their conscience to shade in the matter of number of needles and courses. A very good stocking described as 42 gauge seven thread is on sale in some of the reputable department stores and specialty shops, representing the best consumer value that has come out. This is an exception, and that so low a price is heard can be ascribed to a scarcity of 39 gauge for the dollar bracket, and the fact that chains of shoe stores use hosiery simply as a leader, a side line for promoting sales of other goods. Department stores have had to meet this price for holding their trade, and bank on volume to compensate for the narrowing margin of profit per unit. This accounts for the assaults on manufacturers' prices.

Since the beginning of fall there has been unusual demand for price hosiery for what stores term anniversary sales—it's a buyer lacking in fertility that cannot find something on which his establishment can hang an anniversary. According to buyers for some of the large concerns, they found it difficult to locate distress hosiery for

Full-Fashioned Manufacturers Study Costs

INFORMAL announcement of a meeting of Philadelphia manufacturers of full-fashioned hosiery, to be held in November, is made, to discuss methods for reducing cost of production. A manufacturer speaking for the group says that mills in Philadelphia must decide upon one of three alternatives—increase their prices, reduce operating cost, or move out of the city. It is pointed out that raw silk is higher than when present prices were named, and that those embraced in the group contemplating a discussion of their problems are confronted with increasing competition with open shop mills in Philadelphia and elsewhere.

One proposed remedy is a wage adjustment. It is believed that this could be brought about with little friction, since at a conference of employers and employees some months ago, areduction in the scale was effected. Since then there has been an increase in the number of open shop plants and, it is held, there are many idle knitters ready to take employment at a reasonable scaling of the present piecework schedule. One leading mill, the Ajax, rather than again go through a readjustment program, already has removed to Phoenixville and shortly will start operating a new mill in Pottstown, the two towns being separated by but a few miles and both within less than 40 miles of Philadelphia. Another has partly developed plans for removal. Three mills in Philadelphia, one of them in the larger class, have been idle for six to ten weeks, and it is reported that when operations are resumed it will be on the open shop plan.

Making matters worse for Philadelphia mills, the associated manufacturers in the New York and New Jersey district have signified an intention of having one knitter operate two machines, with a helper. In the organized Philadelphia mills a knitter operates but one machine, and there is serious union opposition to night work. Philadelphia manufacturers contend that they are at a material disadvantage.

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Louisville Textile Co., Inc.,
Louisville, Ky.

David Whitehurst,
409 Parkway, High Point, N. C.

R. D. McDonald,
924 James Bldg., Chattanooga, Tenn.

American Yarn & Processing Co.

Mount Holly, North Carolina

special sales planned for October and November. Even mills with mass production were having an outlet for all they could turn off. So, dollar hose became scarcer, unless dealers were willing to scale profits.

Gimbel Brothers' Philadelphia store, in October, exploited a full fashioned sheer silk ingrain stocking described as imported, priced for an anniversary sale $1.95 a pair. A domestic stocking of comparable intrinsic value would cost the store pretty nearly the sale figure. As an import, it pays a duty of 60 per cent ad valorem. So, if the stocking provides for a turnover at better than cost, the exporter must have taken a distress price. There is the probability that the foreign mill had an accumulation, and as ingrain hose deteriorates with age, found it expedient to unload.

American manufacturers are slow to enter the ingrain field, regarded a dangerous one in that it does not fit in with the 48 hour delivery service demanded by retailers. An Eastern mill is reported having an accumulation of light colors, while the market is calling for darker than recently prevailing shades. The goods were made up in the assumption colors were stabilized and that there would be an advantage in ready-to-deliver stock. There would have been, had style not changed. The buyer for a high class specialty shop where ingrain hosiery is featured, believes that if mills would concentrate on a narrow range of colors and carry stocks, sales of ingrain could be largely increased. He forgets that they would be liable to run into a situation similar to that in which the eastern mill referred to plunged. Dip-dyed staples are sufficient for giving manufacturers all the troubles they are looking for, with style changes unnecessarily frequent and prices, at the best, none too satisfactory.

Some shops having a class clientele, are carrying no novelty heel hose. Buyers say they always can come out whole in staples, while they sometimes must take losses on novelties. So they are adhering to the square heel, of both the French and American standard. The narrowed square heel, these buyers maintain, can, to a very large extent, usually be made to substitute for the pointed, which, however, probably will remain popular for some time. But since the price for patented pointed heel stockings has been reduced by the owner of the patent, manufacturers are less enthusiastic over it, as, while continuing to pay the royalty or license privilege, their profits are much shrunken as a result of the lower list, which became effective in September. "We cannot continue to pay tribute and get an adequate profit," said one manufacturer, who, it develops, expresses a sentiment held by others. It is noted that a manufacturer announces a narrow square heel for one dollar which he believes will make a stronger appeal than the pointed heel in circular knit hose.

While prices established by manufacturers for their respective numbers appear stable, there is a disparity that seems not readily accounted for. A mill in Philadelphia is selling its line of 45 gauge four thread, with picot edge, for $12.50 a dozen, while another, making 42 gauge five thread, quotes $13, and is getting $14.50 for the same gauge of eight thread. The latter mill can be credited with maintaining a more nearly adequate price than the 45 gauge establishment, which, logically, should be having less competition in his particular field. The 42 gauge mill, on the other hand, is well aware that similar gauge is being sold for $9.25 a dozen, subject to a one per cent trade discount, and that a jobber handling the line is putting it into retail stores for $9.50, which supplies a part of the explanation for offerings of 42 gauge at a dollar a pair. But the mill selling for $13 for five thread knits, full width and length, while it is suspected that a half dozen or more needles in the dollar stocking are dropped

In a trade discussion of what constitutes standard length for full-fashioned hose, it developed that some leading mills, selling to retailers direct, contend for 30 inches, and it is stated that is the length frequently specified by dealers. Some authorities hold that there should be two standard lengths, 27 and 29 inches. Mill heads taking exception to this contend that if there are to be two, they ought to be 29 and 31 inches, but that 30 inches is sufficient for all purposes. As is pointed out, if a stocking of that length be too long it can be rolled, and that wearing 'em rolled still is a fad with many women. One manufacturer puts into the "seconds" classification all stockings that come off the machine but 27 inches long, and another does the same thing with 31-inch, the idea of both being to concentrate on 30-inch and spare dealers the burden of carrying more than one length, particularly in view of the wide range of colors.

Although in August there was the usual five-day week operation in many full-fashioned mills, production increased over both the corresponding month of 1927 and July this year, due doubtless to considerable new installation. According to the expansion programs of numbers of manufacturers, a material increase in output in succeeding months seems assured. Then, too, new mills, most of them with from two to four units, are being established, so it is a pretty safe assumption that 1929 production will be well above that of this year. Present indicated output is around 1,350,000 dozen pairs a month, as shown by the statistics of only those mills filing reports with the Department of Commerce.

From the same source it is learned that, notwithstanding the competitive prices for full-fashioned, there is increased production of seamless silk, comparing with a year ago, and with July, 1928. Seamless mills generally are busier than for some time, some maintaining overtime schedules. But, it is pointed out, prices for seamless have dropped to well below those for the cheapest silk full-fashioned on the market. Seamless interests feel that full-fashioned has gone to the very bottom in the matter of production cost and that therefore the seamless is in a stronger competitive position. But, it is apparent, mill mortality is almost exclusively in the seamless division. The survivors are having increasingly less rivalry in their field, and there is no little of used circular machines on the market.

Women's rayon hose as a class, has not had that lift which was predicted for it with recent offerings of several types of non-lustre rayon yarns. Comparing with a year ago, there is indicated a sharp decline in production, amounting to approximately 40 per cent. Silk-rayon combination fell off in almost equal ratio. Chain stores are running stronger on pure thread silk of full-fashioned construction. There is, however, a gain in output of full-fashioned pure rayon and rayon-silk combination, accounted for in large part by the use of Bemberg. While mills making Bemberg hose say there is no decline in demand, most interests insist that it has seen its peak, having yet to prove its adaptability to chiffons, which, notwithstanding they are regarded an expensive luxury, represent the bulk of the sales.

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Process of Dyeing

Manufacturers of men's plain color silk hose, both seamless and full fashioned, report increasing sales, but not in such volume as to indicate any decline in sales of novelties. The test of whether men's fancy socks will hold their prestige will come in the spring. For the current season there is more interest in wool mixture half-hose. But for a period of high temperatures in early October, it is believed, wool lines would have caught up in sales with those of last year. They are, at any rate, moving better than was expected, and as mills adapted summer production to jobber indifference, it seems likely that the advent of snappy weather will find demand in excess of available supplies.

Wool hose for women seems to have gone the way of woolen underwear. In fact, close observers of the trend say that chiffons and net hose will be worn more generally than in previous winters. Nets are thought by some to be staging a comeback for spring, and one manufacturer of circular knit will place his line in several specialty shops for special sale in November, when, if ever, wool hose should be conspicuous on the counter.

With the season for distribution of wool hose nearing the end, some attention is being given to men's fancy socks for Spring, with all of the former troubles for manufacturers present, and some new ones being injected. Cheap half hose are made by numbers of mills on high price machines. Formerly they were able to get cost of machines out of a single season's business. Not so now. Patterns of high price socks soon are duplicated for the 25 cent class, and there is where ruinous competition begins. Jobbers fix an arbitrary price for the several retail classifications, and their price becomes that of the manufacturer who is not protected by exclusiveness of design.

It has been the contention of northern interests that the cheap socks came from southern mills. The fact is, mills in the South were among the first to install the more costly equipment and offer the more modern patterns. It is noteworthy in this connection that W. B. Davis & Son, Inc., announce expansion of their facilities for making the multi-design true ribbed top, to harmonize with the body of the leg, a type of sock that may be expected to prolong the life of the novelty class. The fancy top supersedes the plain, while the designs for the remainder of the stocking are on a more subdued order. It looks as if the hosiery designer is drifting to the southern field, whereas he was especially conspicuous in Reading as a leading centre for fancies for popular prices.

Contrary to the trend in men's socks, children's hose conforms more generally to the sports idea, as stressed in misses shorts and full length. Sprightly designs for spring have made their appearance, but as bare legs were outstanding for fall there is felt some doubt as to what may be the vogue next year. Jobbers have provided fairly liberally for winter, of both the low and high price, and manufacturers of cotton hose, to go over the counter for from 25 to 50 cents a pair, have been able to ship out production from day and night operation of plants. Particularly is there wide distribution of 25 cent lines from a comparatively few mills which seem to have solved the problem of how to profitably operate $800 machines in the production of quarter-dollar stockings, for which jobbers expect to pay around $1.65 a dozen—a nickel or two more for something exceptional in the class. Boys' golf hose in the store are as good as 20 cent cotton, but the difficulty is to put it there, for competition is unusually keen and close figuring is required of manufacturers.

Infants socks have come into about normal movement, after a long wait by most manufacturers, something to which they had become hardened. Jobbers regard any time between July and December as opportune for placing initial orders. Those who bought early were in a small minority, but represented the more important distributors. The smaller fry operated late, and a part of this element has yet to toe the scratch. Group buying has been on a fairly large scale and, notwithstanding the tardiness of numbers of houses, the situation among mills is far more satisfactory than in the fall of recent years.

Underwear

"If I were in Iceland or in the Fiji Islands and were kept informed of our daily shipments of winter underwear to retailers variously located, I could form a pretty accurate idea of the temperatures prevailing in the territory where we distribute," said the underwear manager of one of the larger jobbing houses. Sales invariably fall off sharply on any rise, and increased by leaps when the temperature dropped, he said, referring to the experience of the establishment in September and October. And, he continued, "we bought as we sold."

This pretty well depicts conditions in the underwear primary markets. Taking the season as a whole, so far as it has advanced, shipments have been at a stage representing a near approach to briskness, with distributors buying often and in small lots, determined to be caught with little or no stock at inventorying time. As already some mills are in arrears with deliveries, there is prospect of a tight situation in the event of a few successive weeks of snappy weather. As explained by a jobber, "the consumer buys one garment at a time and the retailer takes two. Neither is provided for winter requirements, nor are the jobbers as a class, and mills are represented as having accumulated no stocks, putting the matter of maintaining assortments up to distributors."

Except in the event of an unusually cold winter, probably less heavy weight underwear will go into distribution than ordinarily. This might be accounted for by the broadening use of summer weights for the year around. A drift in that direction seems to have been gaining with the popularizing of rayon for union suits. In proportion as woolens have given way to heavy cotton ribs over a period of years, say some factors, 12-pound cotton suits have displayed the 16-pound, and medium weights are invading the 12-pound field, presenting the final step toward the all-year garment. So, while winter weights are moving in better quantity, the market is lacking in real autumn vigor, for the reason mainly, wholesalers are at a loss as to how to forecast needs as dictated by both weather conditions and consumer preference in matter of style and weight.

With cotton ribs held back by jobber indecision, the pronounced lull prevailing as to woolen and fleeced cotton up to a week or two ago occasioned no surprise among manufacturers and selling agents. The business in both lines represents no great volume for the season, and unless climatic severity shall cause a change of front, shipments this year seem likely to fall far short of those of last year, when no volume sufficient to cause excitement was recorded. The underwear trades appear to be dominated almost wholly by weather conditions, that is, so far as winter weights are involved, and each year adaptation of output to prospective needs becomes a more difficult problem for manufacturers, with the disposition of jobbers to ad-

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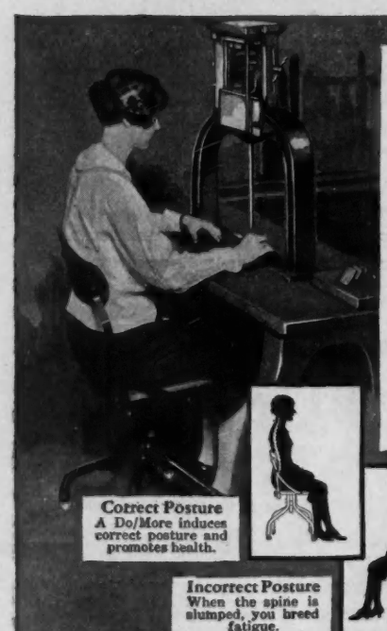

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here to the hand-to-mouth policy of buying.

Light weights for next year have made only a fair start. Initial orders in the aggregate represent no mean volume, but as they are distributed among three distinctive types of garments, few manufacturers can be said to have taken a satisfactory amount of business in men's lines. Heretofore distributors had to consider but the knitted and the union suits of woven cloth, when planning for their requirements, whereas, now the knitted shirt to be worn with shorts of woven fabric represents a combination with which they must reckon. And the shorts, or running pants, may be of cotton or of rayon, this division thus presenting a doubly perplexing situation to be reckoned with.

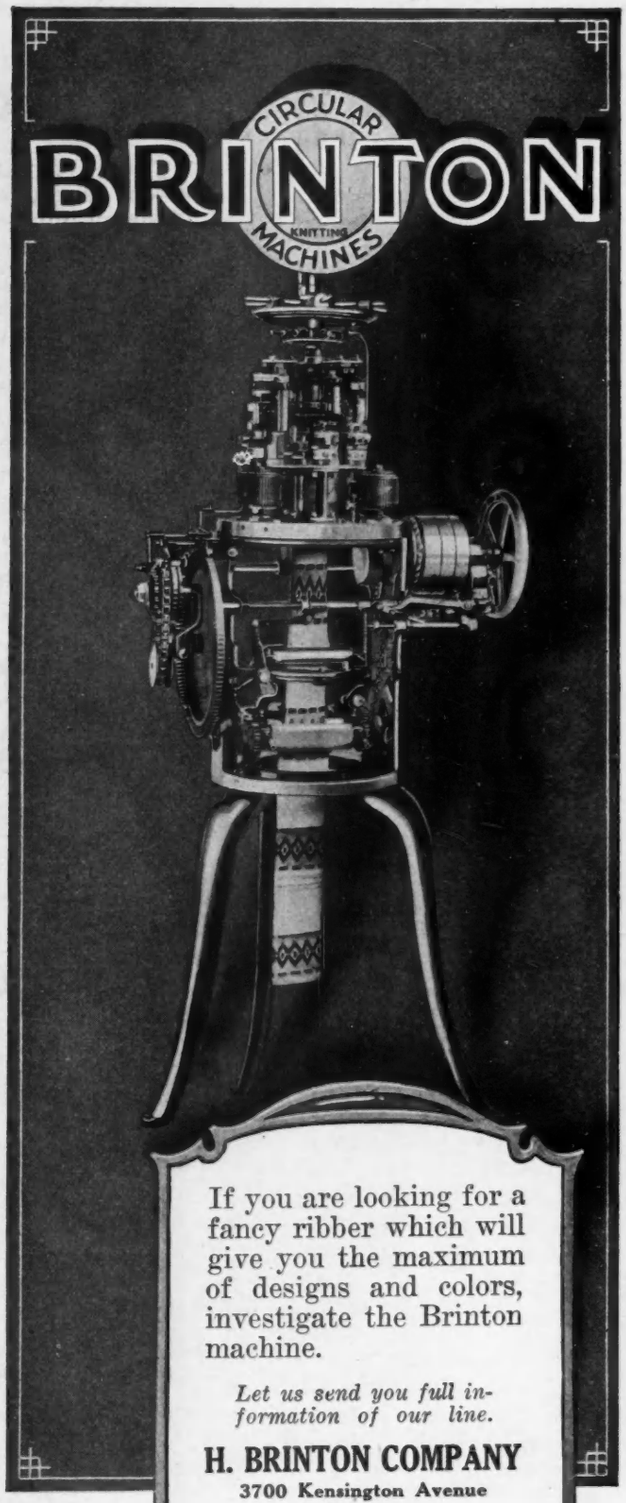
At this stage of the season for forward buying, it would appear that there ought to be conservative contracting for knitted union suits and nainsook athletic suits. Nainsooks probably will gain no more ground as against knitted suits, and doubtless will lose some to rayon suits and the knitted athletic shirt and shorts combination. They are too well entrenched to be viewed as a hazardous trading proposition. Knitted union suits for the better trade are to be regarded as staple, and in the newer construction, this type of logical garment is promising of not only making new friends but winning back some that were lost in the frenzy over style. But there are too many divisions of underwear for healthy trading in either while a coming season's style is in the balance.

Manufacturers of women's rayon underwear or, to be more precise, lingerie, are approaching the height of their season. Mills are booking business for retailers' holiday sales, and reports from scattered establishments and selling agents indicate heavier distribution than in any previous year. There is, however, evidence of fear that rayons are being overproduced, this cropping out in the proposal of some manufacturers to make a change in their methods of distribution. Rayons would be further advanced in popularity but for the competition in which skimping and use of inferior cloth were resorted to for working down to an irreducible price. One successful manufacturer of standard grade goods suggests that the rayon interests adopt size standards, regardless of standards existing for cottons, and that makers in turn brand their product or the packing in a way to protect dealers and consumers against the skimped. The rayon industry for some time has been confronted with the same evil that detracted from consumer confidence in nainsook union suits, and it may be some time before it is out of the woods in this particular.

It might appear an exaggeration to say that women's cotton underwear shows no decline in interest, so far as relates to medium weight. Yet shipments measure up to last season's volume, according to the more important manufacturers, who report also a satisfactory business during the light weight season. It appears, however, that the bulk of current shipments are to catalog houses and chain stores.

Sweaters

While with some manufacturers conditions in the sweater primary markets are not wholly satisfactory, this division of the knitting industry as a whole has recovered from a prolonged case of doldrums. Some mills show by production charts that their shipments to the middle of October were fully up to those for the whole of 1927, rated a satisfactory year. Others, in equally good repute, estimate their 1928 output will be from 15 to 20 per cent under that of last year. The disparity, it is conceded, is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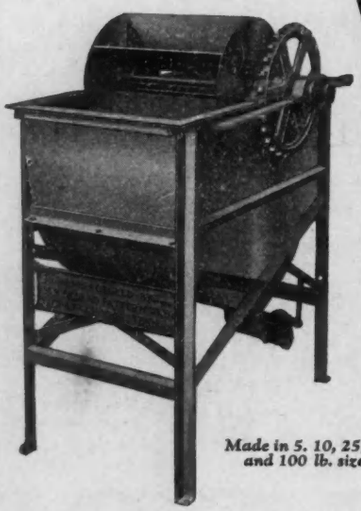

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due to merchandising methods and the matter of style.

Shaker knit coats, lagging for a time, are in better call, and solid colors are moving well, notably navy and black. Pullovers are reported by mills outselling the button up coats, this applying also to sports coats, for men, women and boys. Sweaters for boys appear to have had a substantial comeback, practically superseding lumber jacks. As to women's slip-ons, they are said by manufacturers to have been bought up more heavily than was the case last year.

Some mills making general lines have been from two to four weeks behind with deliveries, due largely to lateness of jobbers in supplying details. Practically none are running on stock goods. The promptness with which orders are shipped out depends on whether a mill has or has not sold up on its production. At the rate that demand has increased since the early part of September, it is within the range of probability that orders placed late in November will have small chance of going through this year. In some respects, the sweater market is in a safe, healthy condition, but that the year has not measured up to manufacturers' expectations seems indicated in changes of selling agents effective November 1st.

Among the Knitting Mills

ACQUISITION of the Huntsville Knitting Mills, Huntsville, Ala., extensive manufacturers of underwear and other textile products, by the Helen Mills of Alabama, a newly organized corporation, has been announced.

It has been officially announced that the hosiery mill of the Davis-Allcott Hosiery Company, Gadsden, Ala., will be started up after being shut down for the past four months.

It is reported that a new hosiery mill is being formed at McDonough, Ga., for the manufacture of fancy half-hose.

It is announced through Lockwood, Greene and Company, Charlotte, N. C., engineers, that the Archer Hosiery Mills, Columbus, Ga., are planning to erect several new buildings. The largest building will be two stories, 128 x 72 feet, and an office building 36 x 42 feet will also be built. Boarding room specifications are 45 x 63 feet and the boiler room will be 18 x 36 feet.

Garrou Knitting Mills, Inc., Morgantown, N. C., are erecting an addition to their plant, 60 x 92 feet, two stories, mill construction. J. J. McDevitt Co., Charlotte, N. C., are the contractors.

Machinery is being installed in the Bossong Hosiery Mills, Asheboro, N. C. The company will manufacture full-fashioned silk hosiery on German knitting machines.

Nebel Knitting Co., Charlotte, N. C., is reported to be considering the establishment of a branch plant at Wilmington, N. C.

Real Hosiery Company, Hickory, N. C., recently started operations. The mill is equipped with 69 knitting machines, 17 loopers, three ribbers and three sewing machines. The company manufactures cotton hosiery.

The Belmont Hosiery Mill, Belmont, N. C., has started operations. The plant is equipped with 20 Scott & Williams Model H H knitting machines for the manufacture of men's silk hose.

The Montcastle Knitting Company, Lexington, N. C., has installed 45 Jacquard knitting machines.

The Diamond Full-Fashioned Knitting Company, High Point, N. C., have placed an order for 25 H.S.L. high speed machines for installation in the near future.

Purchase of the control of the Nuckasee Manufacturing Co., Greenville, S. C., by the Hampshire Underwear and Hosiery Co., of New York, has been announced.

It is reported that 16 full-fashioned hosiery machines will be installed at the Ruth Hosiery Mills, Durham, N. C. A new building is now under construction.

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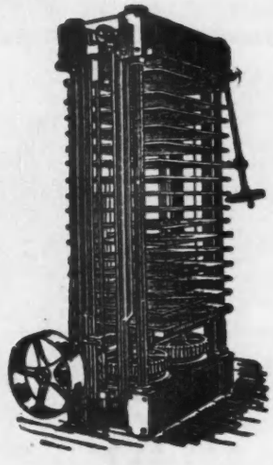

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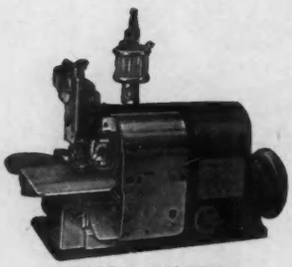

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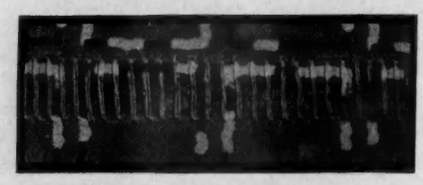

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Report of Waste Discussion

(*Continued from Page* 14.)

must be given up for the good of the mill. E. W. Edwards added that the main thought he would take was to take an inventory of himself to see whether there weren't some things about his methods and practices which could be changed to conserve time and effort. Commenting upon this discussion, Mr. Tatum brought out that "the best managed mill is the mill which is least managed".

Mr. Morgan, of Burlington, with regard to waste of money, declared in his opinion that the greatest help was to have organization and cooperation, and—added Dean Thomas Nelson—coordination of effort.

This concluded the morning session, and adjournment was taken for luncheon, following which a continued brief discussion was held.

After the luncheon, there were some interesting points developed. The first information was with regard to spinning waste, and Mr. Cates reported that his hard spinning waste on 25s, for 22,000 spindles for a quarter, was approximately 436 pounds.

Reducing the Slasher Waste.

The next question asked how to reduce the amount of waste on run-outs at the slasher. Mr. Parks reported that he had effected quite a saving by the installation of ball bearings on the warper measuring roll, but that this had not entirely eliminated the waste of course, it being the concensus of opinion that it could never be eradicated altogether. Mr. Cates brought out that where more than one warp is run from a creel, and the last creel is lighter than the first, this might have a tendency to produce uneven run-outs.

Mr. Tatum declared that with regard to soft waste behind the slasher, this is largely a matter of close cooperation between the warper man and the slasher man, in keeping records of short and long beams. He added that, "I have found it necessary to set each warper a little different from the others; the slightest difference in the measuring roll on the warper will make considerable difference. We worked it out by keeping records and noticing which made the longest beams; certain warpers will habitually make long or short beams." He added also that he had tried painting the measuring roll, but this proves ineffective as a permanent remedy because the paint will wear off.

"What is a fair average of waste per beam on the section beams back of the slasher?" asked Mr. Mullen. Mr. Tatum reported 1.1 pounds per beam of soft waste on 480-end beams of 14s, four beams to the set. Others indicated that their averages run around one pound to the beam.

How to prevent waste in starting up slasher sets was next asked. Mr. Mullen reported that he had reduced this by adopting the use of gummed tape on the section beams from the warpers; as it shows the slasher man where to put in his strings. The tape is applied about 2½ yards from the end.

"The more bunches you separate the yarn into, the less waste you will have," said Mr. Tatum. "I have seen places where they tie on a set by dividing the yarn into two or three bunches. That makes the angles wider and it takes it longer to get into a solid sheet." He said he tries to divide the warp into no less than eight bunches, more if possible.

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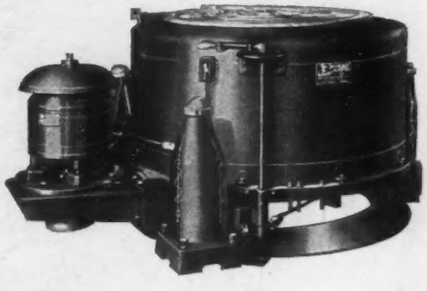

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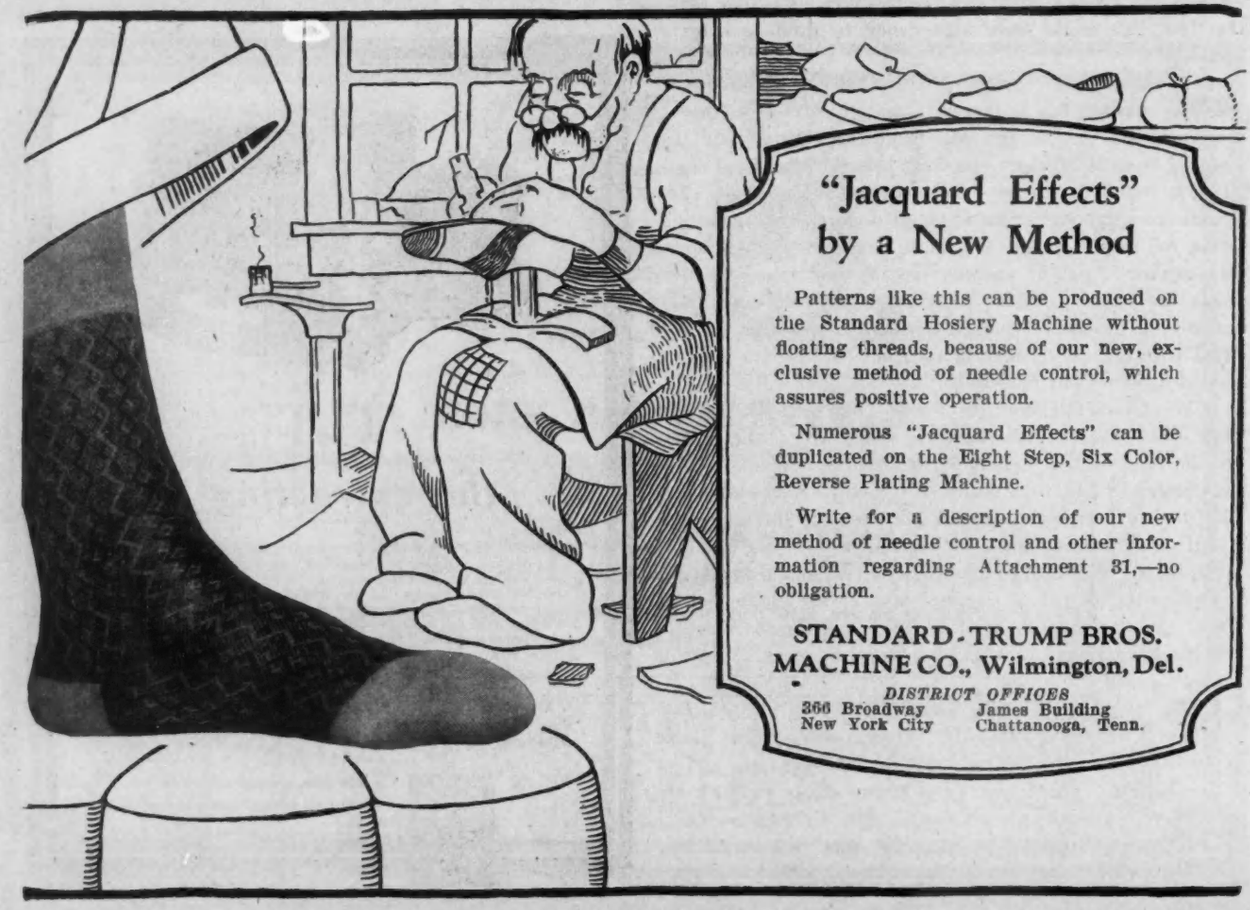

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Another point Mr. Tatum mentioned was the practice of running the yarn over from the time it is tied on until it is laid in the comb without being sized. He pointed out that a considerable saving in waste would be made if this yarn is sized.

P. B. Parks asked "what is the best method of piecing up on filling frames on feeler bobbins to be used on looms without feelers?" The socket piece-up was recommended.

John Rose reported difficulty with the yarn bulging over the end of the warp shell, on ball warpers. As a remedy, Mr. Cates assured him that speeding up the screw, running the traverse faster, would relieve this difficulty. Decreasing the weight on the warp as it builds up was recommended by Mr. Smith, of Hopedale Mills.

Mr. Rose next asked if it is customery to use a roll between the harness and the wheel that goes back to the winding head, or just to let the yarn run straight through the reed. It developed that he is trying it both ways. This practically concluded the discussion, and the meeting was adjourned. It was voted to leave the selection of the place for the Spring meeting in the hands of a committee consisting of N. B. Hill, of Kinston, Will Ward, of Durham, and John Rose, of Henderson.

Report of Texas Meeting

(*Continued from page* 6.)

"We have found that we have more wear on harness caused by carelessness on the part of the loom fixer than anything else," declared Mr. Chappell, explaining that most people use screw-eyes on the bottom of the harness, and when this works out, if the loom-fixer is careless about replacing it, he won't put it in straight, causing a side pull on the harness resulting in undue wear.

Mr. Clarke asked how many of the men inspect and clean the harness before returning it to the drawing-in machine, and it appeared to be general practice to do this.

If the harness is setting too close to the lay, undue wear will result, said Mr. Poole. This is caused by the Pittman arms being worn, and when the loom makes its backward stroke it shortens the point. He recommended the replacement of Pittman arms. Mr. Clarke added that improper storage and carelessness in handling harness will result in useless wear.

How Often Should Cards Be Ground?

Frequency of card grinding came up next. Mr. Lee said that on a day and night run, he grinds every 17 days and grinds for ten hours, setting up the card all over with each grinding. "We grind every 16 days, and set everything but the flats; setting them four times a year."

W. F. Smith, of Mexia Textile Mills, reported that he grinds every 15 days; keeping two cards grinding all of the time. He sets the doffer and licker-in at each grinding, the rest every other time. "We grind lightly to get a better point. We card 175 pounds a day."

"We grind every 20 days, day time only, setting the licker-in and doffer on one round, and the whole card on the next round," said Mr. Burow.

Mr. Poole reported grinding every 28 days, setting up all over every other time.

"We grind every four weeks," said Mr. Morton, "setting the doffer every time we grind and the card throughout every other time." He added that the length of time

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a card should be ground depends on the condition of the card; that a card that is faced from rubbing cannot be ground in ten hours.

"At Waco we get around every 27 or 28 days," said Mr. Clarke, "and set up everything every time." He explained that a faced card would be considered a special case, and that the ten-hour grinding period is only a general rule and is not intended to apply in every case. He pointed out further that from two- to four-thousandths is removed from a card at a grinding, and that since it doesn't take long to set a card up, he believes in doing this with every grinding. He explained that "when he comes to work our grinder, after he gets the cards started up, takes down a card and puts his grinder on it, setting the grinder up to where he gets a light spark, and just leaves it there all day long.

REPORTS ON SPINNING END BREAKAGE.

The next feature was the most interesting of the meeting. Prior to the convention, the Association sent out questionnaire and test blanks to be used in making comparable tests on the number of ends down per thousand spindles per hour, in spinning. The table on page five gives the Association's compilations of the reports made on this test, and it provides some valuable information as to actual conditions. The reader is referred to this table for the information developed. Several of the members admitted that their tests afforded surprises as to what they are actually doing; pointing to this as a constructive piece of work on the part of the Association.

Proportion of Starch and Compound in Size.

Following the end breakage reports the meeting was opened for discussion. Mr. Burow, of the Consolidated Textile Corporation, asked opinions as to the proper amount of sizing compound to use in proportion to the amount of starch in the sizing mixture. Mr. Haddock reported that a number of mills had found a percentage of 1 pound of compound to 10 pounds of starch, or 10 per cent of the weight of starch, very satisfactory. Ingram Lee reported the use of 130 pounds of starch, 30 pounds of compound, 10 pounds of gum and a little glycerine. Mr. Coman uses 70 pounds of 40-degree fluidity starch, 35 pounds of Pearl, and 20 pounds of compound, with a pint of kerosene to keep the cylinder clean. Claude Mast of Itasca uses 90 pounds of starch and 21 pounds of compound. J. O. Wilson, superintendent, Guadalupe Valley Cotton Mills, Cuero, reported 130 pounds of thick boiling starch, nine pounds of Arcy, and 30 pounds of compound. Mr. Coman reported that he is now trying a new compound in the ratio of one pound to 100 pounds of Pearl starch, but was not ready to give any opinion on it.

Reverting to the previous discussion on inspecting, Mr. Haddock brought out that, "I have the pleasure of going around to most of the bleacheries and finishing plants in the South, and I was in a man's office the other day who told me that most of the trouble the bleachers and dyers have is not that which comes up in the inspection, but after the goods are baled. One trouble he pointed out was that some mills bale their goods in ties that were used on cotton bales, resulting in rust stains on the outside of the bales; another was shipping in greasy box cars." Mr. Haddock also explained that shipping single instead of double cuts causes trouble at the bleachery, where the processes are automatic and high speed; when a piece of cloth runs out before it is anticipated, it causes a stoppage in the entire range of process until the machine is threaded up again.

Cleaning Spinning Rings.

A member asked for methods of cleaning double flange rings that had been turned over. Mr. Smith suggested using pumice stone, ammonia and cutting oil. A man from Guthrie told of using the pumice stone and cork arrangement in a small tumbling barrel.

Mr. Clarke asked how to prevent uneven run-outs on slashers. Ingram Lee told of fastening a small piece of leather over the measuring roll, with a weight on it, to reduce this difficulty. Mr. Clarke said he had put electrical measuring devices on his warpers, and that while this does help, it isn't perfect.

Mr. Lance, Mr. Clarke and Mr. Coman at this point told of the advantages to be derived from automatic heat regulation in slashing, on the size boxes, cooking kettles, etc., as well as automatic recording at these points. Mr. Clarke asked the question, "How many have the size kettles insulated?"

Using Condensed Steam for Making Size.

"I have," said Mr. Coman, "and I think it is one of the finest things we ever did. We make up a batch about four o'clock in the afternoon, and have about two inches of 85 per cent magnesia packing around our kettles, which enables us to hold the mix overnight without the temperature going below 165 or 170 degrees.

"Another thing is that we use the condensed steam from our slasher cylinders for cooking our size. We run it into a vat and use it from there; you know you can use this water at around 100 degrees temperature and save a great deal of heat. I think the recording thermometer is worth its weight in gold."

This practically concluded the discussion and the session was closed.

STATEMENT

of the ownership, management, circulation, etc., required by the act of Congress of August 24, 1912, of COTTON, published monthly at Dalton, Ga., for October 1st, 1928.

State of Georgia, County of Fulton.

Before me, a Notary Public, in and for the State and County aforesaid, personally appeared W. J. Rooke, who, having been duly sworn according to law, deposes and says that he is the Business Manager of COTTON, and that the following is to the best of his knowledge and belief, a true statement for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are: Publisher, W. R. C. Smith Publishing Co., Atlanta, Ga.; Editor, R. W. Philip, Atlanta, Ga.; Business Manager, W. J. Rooke, Atlanta, Ga.

2. That the owners are: W. R. C. Smith, Atlanta, Ga.; W. S. Cushion, Cleveland, Ohio; O. A. Sharpless, Atlanta, Ga.; J. C. Martin, Atlanta, Ga.; H. H. Kelley, Willoughby, Ohio; W. J. Rooke, Atlanta, Ga.; T. W. McAllister, Atlanta, Ga.; P. D. Hammett, Chicago, Ill.; L. F. Gordon, Atlanta, Ga.

3. That the known bondholders, mortgagees and other security holders, owning or holding 1 per cent or more of total amount of bonds, mortgages, or any other security holders are. None.

4. That the two paragraphs next above giving the names of the owners, stockholders, and security holders as they appear upon the books of the company but also, in cases where the stockholders or security holder appear upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting is given; also that the said two paragraphs containing statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stock holders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bonafide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him. W. J. ROOKE, Bus. Mgr.

Sworn to and subscribed before me this 1st day of October, 1928.

E. L. PHILPOT, Notary Public.

My commission expires March 5, 1931.